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Arizona Corporation Commission

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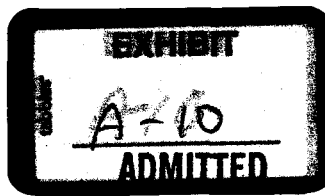
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PART 4 OF 8. FOR PART 1 PLEASE SEE BARCODE 0000148255, FOR PART 2 SEE

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0000148259, FOR PART 6 SEE BARCODE 0000148260, FOR PART 7 SEE BARCODE

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THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE, Chairman

BOB STUMP

SANDRA D. KENNEDY

PAUL NEWMAN

BRENDA BURNS

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER – PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA.

DOCKET NO. SW-03575A-12-_____

Direct Testimony

of

Ron Fleming

July 9, 2012

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1 **I. Introduction.**

2 **Q. Please state your name and business address.**

3 A. My name is Ron Fleming. My business address is 21410 North 19th Avenue, Suite 201,
4 Phoenix, Arizona 85027.

5
6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Global Water Management, LLC as the General Manager, Arizona. In
8 that capacity, I oversee the operations of our Arizona utilities, including the applicants in
9 this case, Global Water – Santa Cruz Water Company (Santa Cruz), Global Water – Palo
10 Verde Utilities Company (Palo Verde), Valencia Water Company – Town Division;
11 Valencia Water Company – Greater Buckeye Division; Water Utility of Greater Tonopah;
12 Willow Valley Water Co., Inc. and Water Utility of Northern Scottsdale (collectively, the
13 Global Utilities).

14
15 **Q. Please describe your background and qualifications.**

16 A. I earned my Bachelor of Science degree in Construction Management from School of
17 Engineering at Northern Arizona University in 2003. My emphasis was on Heavy Civil
18 Construction, with a minor in Business Administration. From 2002 to 2004, I worked as a
19 project manager and project engineer for general contractors, supervising a number of
20 significant projects. I joined Global as Senior Project Manager (2004 – 2007), where I
21 provided project management for Global's Maricopa region. During this time, I directly
22 oversaw Global's Capital Improvement Program for Santa Cruz and Palo Verde while they
23 were some of the fastest growing utilities in the nation. In 2007, I was promoted to
24 General Manager of the West Valley Region, where I had direct responsibility for the five
25 utilities Global acquired from the former owners of West Maricopa Combine. In 2010, I
26 was promoted to General Manager, Arizona, with direct responsibility for the operations of
27 all of Global's utilities in Arizona.

1 I am a member of the boards of the Buckeye Valley Chamber of Commerce, Pinal
2 Partnership, and WESTMARC. I am also a Co-Chair of WESTMARC's Water & Energy
3 Committee, and I serve on the strategic committee of WESTCAPS. I also achieved
4 various professional certifications, as listed in Attachment Fleming-1.

5
6 **II. Public benefits of Global's purchase of troubled utilities.**

7 **A. Sonoran / 387.**

8 **Q. Please describe the Sonoran / 387 situation and history.**

9 A. This service area was located near the Santa Cruz's and Palo Verde's existing service area
10 in Maricopa, Arizona. Service was legally provided by the 387 Domestic Water
11 Improvement District and the 387 Domestic Wastewater Improvement District, which
12 were formed in 2003. However, Sonoran Utility Services held contractual rights with the
13 387 Districts, and actually owned the assets, managed the 387 Districts, and provided
14 service. Under this set-up, Sonoran was essentially a private utility, but was not subject to
15 the Commission's jurisdiction.

16
17 The Sonoran / 387 service area was located near Maricopa, Arizona, which was one of the
18 fastest growing cities in the United States from 2003-2006. Unfortunately, Sonoran was
19 not ready for the rapid growth in the area, and it was not able to provide service. Sonoran
20 had not completed its wastewater treatment plant, nor had it completed its numerous lift
21 station facilities which had been issued stop work requirements from the City of Maricopa
22 due to lack of permitting. Customers had already moved into the area, so there were
23 homes occupied without wastewater service, an entirely unacceptable situation that
24 violated numerous regulatory requirements. In addition, the Sonoran wells did not meet
25 federal and state water quality standards. The Commission recognized that this situation
26 was an emergency (See e.g. Decision No. 68498; Decision No. 70133).

- 1 **Q. What happened when Sonoran and the 387 Districts were not able to provide service?**
- 2 A. At the time, Global's utilities (Santa Cruz and Palo Verde) were the closest utilities and
- 3 were in a position to assist, in numerous locations we actually had parallel infrastructure in
- 4 the same area. The City of Maricopa, ADEQ and ADWR asked Santa Cruz and Palo
- 5 Verde to take over service on an emergency basis. We immediately began providing
- 6 bottled water to the customers, and we began to "vault and haul" the wastewater from the
- 7 incomplete 387 lift stations to Palo Verde's water reclamation facility. On April 14, 2005
- 8 we were able to interconnect Santa Cruz's water system to the 387 water system, and to
- 9 interconnect Palo Verde's wastewater collection system to the 387 wastewater system. In
- 10 the intervening years, we have fully integrated the former 387 service area into our
- 11 Maricopa region.
- 12
- 13 **Q. What legal steps were taken to take over the 387 service area?**
- 14 A. Global entered into a contract to purchase the Sonoran assets. A number of developers in
- 15 the 387 area entered into ICFA agreements with Global that helped Global fund the
- 16 purchase. Santa Cruz and Palo Verde filed an application to extend their CC&N
- 17 application to cover the former 387 areas. The CC&N was ultimately granted on
- 18 September 30, 2008 in Decision No. 70533.
- 19
- 20 **Q. How was Global's purchase of the Sonoran / 387 assets in the public interest?**
- 21 A. Sonoran / 387 was unable to provide potable water service or wastewater service, creating
- 22 a public health emergency in Pinal County. Global acted quickly to resolve this crisis.
- 23 Thousands of customers now live in the former Sonoran / 387 area. These customers
- 24 receive water and wastewater service in compliance with all regulatory requirements; and
- 25 as possible, these areas have also been integrated into Global's Total Water Management
- 26 programs.
- 27

1 **B. West Maricopa Combine (WMC).**

2 **Q. What was the West Maricopa Combine (WMC)?**

3 **A. WMC was a holding company that owned five utilities: Valencia Water Company; Water**
4 **Utility of Greater Buckeye (now Valencia Water Company – Greater Buckeye Division);**
5 **Water Utility of Greater Tonopah (WUGT); Willow Valley Water Co., Inc. and Water**
6 **Utility of Northern Scottsdale. Global purchased WMC in the summer of 2006. After**
7 **Global took possession, we discovered numerous serious problems.**

8
9 **Q. Please explain some of the problems Global discovered upon buying WMC.**

10 **A. The condition of WMC's systems was deplorable. There were rocks used in electrical**
11 **breakers, and bungee cords were used to close high voltage electrical panels. The Valencia**
12 **system lacked adequate capacity, which required us in the first summer post-acquisition to**
13 **shut off service to large non-potable irrigation customers to ensure there was sufficient**
14 **water for our homes. Distribution systems were in very poor condition, and many remain**
15 **that way as it will require significant additional investments to rectify.**

16
17 **Most troubling was the situation in Willow Valley. We discovered that under the former**
18 **management, Willow Valley providing non-chlorinated drinking water in an unlooped**
19 **distribution system in an area that had a history of coliform events. This created a**
20 **significant public health risk. Former management concealed this situation by tampering**
21 **with water samples, and by filing false reports or failing to file necessary reports with the**
22 **relevant regulatory authorities. We immediately began chlorinating the Willow Valley**
23 **system. My testimony contains additional information on the significant effort that was**
24 **necessary and remains ongoing to correct all the severe water quality and infrastructure**
25 **issues in Willow Valley.**

1 **Q. What other issues did Global discover?**

2 A. There were significant compliance problems. Under former management, WMC failed to
3 issue required public notices, failed to complete required Customer Confidence Reports
4 (CCRs), failed to adequately monitor their systems, and failed to file required reports.
5

6 **Q. What about the unauthorized hook-ups?**

7 A. We discovered that a group of WMC employees were making illegal service connections,
8 sometimes outside of the CC&N of the relevant utility. This was an organized group of at
9 least six employees; they collected – and pocketed – funds from the customers for these
10 hook-ups, thus defrauding the company and its ratepayers. In many cases, the hook-ups
11 were made without engineering, proper testing, inspection or regulatory approval.
12

13 In response to this situation, Global terminated the responsible individuals. In addition, we
14 filed a CC&N application for the unauthorized connections outside of our CC&N areas. In
15 the application, we disclosed the unauthorized connections and explained the situation we
16 discovered upon our purchase of WMC. The Commission ultimately issued a CC&N
17 extension in Decision No. 70302 (April 24, 2008)(See Findings of Fact Nos. 11 to 19 for a
18 discussion of the unauthorized connections).
19

20 **Q. What about compliance with the new arsenic standards?**

21 A. WMC had taken some steps towards complying with the EPA arsenic standards, but
22 overall they were not prepared and could not secure the necessary funding. Some of the
23 treatment systems that they did design and install, functioned poorly. We upgraded them as
24 possible, but often it is impossible to dramatically improve poorly engineered and
25 constructed systems without total replacement. In other locations, we had to scramble to
26 design and install treatment systems to meet the EPA arsenic requirements and fast
27 approaching deadline to comply with the rule.

- 1 **Q. You mentioned that the WMC systems were in poor condition. What did Global do?**
- 2 A. Global began a comprehensive program to repair, upgrade or replace the inadequate
- 3 portions of WMC's systems. We identified 53 separate issues that needed to be fixed.
- 4 Overall Global has spent over \$17 million on fixing WMC's systems. The 53 issues and
- 5 the steps we took to remedy them are described on Attachment Fleming-2. Today, we still
- 6 continue to encounter challenges beyond those contained in this listing.
- 7
- 8 **Q. Please provide some additional detail on the problems in Willow Valley.**
- 9 A. The most alarming was the discovery that the WMC group was providing non-chlorinated
- 10 drinking water in a system that had past coliform events. Global immediately began
- 11 chlorinating the water to ensure the public health and safety of its customers.
- 12
- 13 **Q. What occurred when Global began chlorinating the water in Willow Valley?**
- 14 A. The chlorine reacted with the naturally occurring high levels of iron and manganese in the
- 15 water and deposits of these minerals that had built up overtime within the distribution
- 16 system due to lack of proper treatment – the result was the drinking water turned brown,
- 17 literally the color of Coca Cola.
- 18
- 19 **Q. What other issues did Global encounter in Willow Valley?**
- 20 A. The distribution system was in poor condition. Global realized that the distribution system
- 21 emplaced by earlier owners was primarily substandard pipe not typically used in domestic
- 22 water systems. Because of the high iron and manganese concentrations in the area's
- 23 source water (that was not properly removed with beneficial treatment techniques by prior
- 24 owners), those pipes had become highly congested with iron and manganese deposits.
- 25 Literally, a 6" inch diameter pipe had a 2 – 3" usable space left within the interior of the
- 26 pipe. This also resulted in system pressure issues.
- 27

1 **Q. How has Global been dealing with that issue?**

2 **A.** First, you must start at the source as to eliminate the continued introduction of the minerals
3 into the distribution system. So in 2007 and 2008, Global built new iron and manganese
4 removal systems at the production facilities. This was part of a multi-year, multi-faceted
5 approach to eliminate the water aesthetic and quality issues. Here is an outline of the plan
6 that was executed:

- 7 ▪ Installed new chlorine injection systems that help ensure water is properly disinfected.
- 8 ▪ Installed auto-dialer alarm systems that notify our staff in the event there are
9 operational issues at our facilities. This helps prevent service outages.
- 10 ▪ Identified all existing water lines and performed Hydraulic Modeling to establish
11 distribution system performance. This assists in planning system improvements to
12 maximize benefits to the system as a whole.
- 13 ▪ Installed automatic flushing devices and operate an active flushing program to reduce
14 the built up iron and manganese accretion in the water pipelines.
- 15 ▪ Completed the Unit 17 Water Distribution Center (WDC) Improvement Project. The
16 project included a new iron and manganese removal system along with a new water
17 source, and complete electrical/mechanical upgrades. These new facilities have
18 improved water clarity and reliability of service.
- 19 ▪ Completed the King Street WDC Improvement Project. The project included general
20 site improvements and upgrades to the existing iron and manganese removal system
21 and electrical/mechanical systems. The site will be used as support for the Unit 17
22 WDC in the King Street area and has also improved water clarity and reliability of
23 service.
- 24 ▪ Completed the Cimmaron WDC Improvement Project. The project included complete
25 site improvements and upgrades to the existing iron and manganese removal systems
26 and electrical/mechanical systems. These rehabilitated facilities will improve water
27 clarity and service reliability for the Cimmaron Development.

- 1 ▪ Installed new control valves in strategic areas as to improve our ability to re-direct
- 2 water, isolate line breaks, and reduce the number of customers affected by failures.
- 3 ▪ Finally, recently we completed additional treatment upgrades to address the remaining
- 4 water aesthetic and compliance issues, as discussed below.

5

6 Beyond these improvements that were required immediately, it remains clear that the

7 remaining pipeline system must be replaced. Willow Valley will need to install new water

8 mains, water line loops, and install new valves where needed to eliminate frequent line

9 failures and to improve service reliability.

10

11 **Q. Can you provide more specific detail on the amount and type of lines that still need to**

12 **be replaced in Willow Valley?**

13 **A.** Yes, Global utilized a WIFA technical grant to study the Willow Valley distribution

14 system. This study helped prioritize the areas that most needed and would provide the

15 most benefit if replaced first (reference Attachment Fleming-3). Overall, the study

16 determined all pipelines needed to be replaced through an ongoing replacement program.

17 Global estimates the cost of main replacement program could reach \$5 million.

18

19 **III. Efficiency, Reliability, and Conservation – Results for our Customers.**

20 **Q. Please discuss efficiency.**

21 **A.** Efficiency is a core value for Global Water, as noted in Mr. Hill's Direct Testimony.

22 Efficiency comes in many forms; from monetary, to resource preservation. In designing

23 new utility systems, Global Water focuses on minimizing operating costs and consumption

24 of resources (water and power). That means designing regional facilities for optimal long

25 term use, equipping these assets with advanced technology systems for maximum

26 automation and control, and promoting "the right water for the right use". These methods

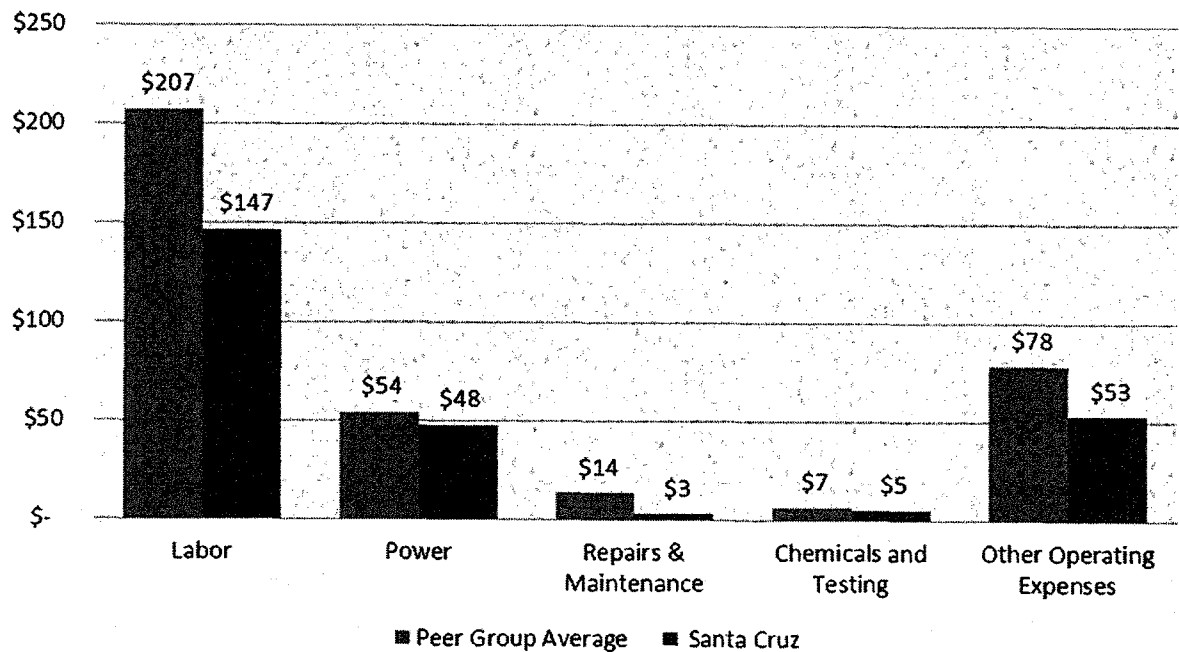
27 allow the customer and the utility to benefit from economies of scale and reduced

1 operating costs attributable to optimized regional infrastructure, and eliminates the need to
2 pay for the high costs of treating water to potable water standards when the water is
3 destined for a non-potable use – such as watering grass. These concepts are part of Global
4 Water's Total Water Management approach, again as discussed in Mr. Hill's Testimony.
5

6 **Q. How efficient is Global as compared to peer utilities?**

7 A. Very efficient. The data below reports on Global Water – Santa Cruz Water Company,
8 Global's largest water company, and one we have been able to plan from the ground up.
9 While we have made significant strides in rectifying the financial problems of WMC
10 along with making the necessary infrastructure improvements, the WMC systems will
11 have worse results – the choices made by former owners will have long-term
12 consequences for the cost structures of these utilities. Using data from the 2011 Annual
13 Reports on file with the Commission, we compared Santa Cruz's operating expenses to 8
14 of the other largest utilities in Arizona. Santa Cruz compares favorably to its peers,
15 demonstrating the benefits to customers of Total Water Management. The results are
16 shown in the chart below:
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Operational Expenses per Customer Santa Cruz vs. Peer Group Average 2011 Annual Reports Data



Peer Group Includes: Arizona American (Water), Chaparral City, H2O, Johnson Utilities (water) Water, Lago Del Oro, Litchfield Park Service Company (Water), Pima Utilities.

Q. What about reliability?

A. Global Water provides reliable service to our customers. Our results in Santa Cruz are about as good as a Utility can achieve, and we have made significant reliability improvements in some of the former WMC systems. In measuring reliability, we utilize SAIDI and SAIFI, standard reliability statistics used in the electric industry. SAIDI means "System Average Interruption Duration Index" and SAIFI means "System Average Interruption Frequency Index." While these metrics are commonly used in the electric industry, they can also be applied to the reliability of water distribution systems.

Our results for SAIDI and SAIFI are shown in the charts below:

SAIDI

	2009	2010	2011
Santa Cruz	0.00	0.01	0.00
Valencia	0.43	0.68	0.75
WUGB	0.00	0.17	0.76
WUGT	22.41	23.95	3.84
Willow Valley	2.01	17.23	12.03
Average in Electric industry (2008)		4	

SAIFI

	2009	2010	2011
Santa Cruz	0.00	0.01	0.00
Valencia	0.14	0.24	0.14
WUGB	0.00	0.09	0.76
WUGT	1.27	3.68	1.81
Willow Valley	0.88	3.29	2.90
Average in Electric industry (2008)		1.5	

Again, the utility that Global has built from the ground up, Santa Cruz, scores very well on these measures. Santa Cruz's customers essentially experienced zero outages during the test year (and also during the two preceding years.) While Willow Valley and Greater Tonopah do not do not score as well on these measures, this is not an indication of a lack of commitment to service quality on Global's part. Rather, it is shows the continuing impact of the decisions made by their previous owners who did not make the necessary investments to maintain healthy utilities. Global has worked diligently to alleviate these problems. However, in the water utility industry the legacy of prior maintenance and investment decisions cannot be escaped quickly or easily.

1 **Q. How does Global compare to other utilities in water use per customer?**

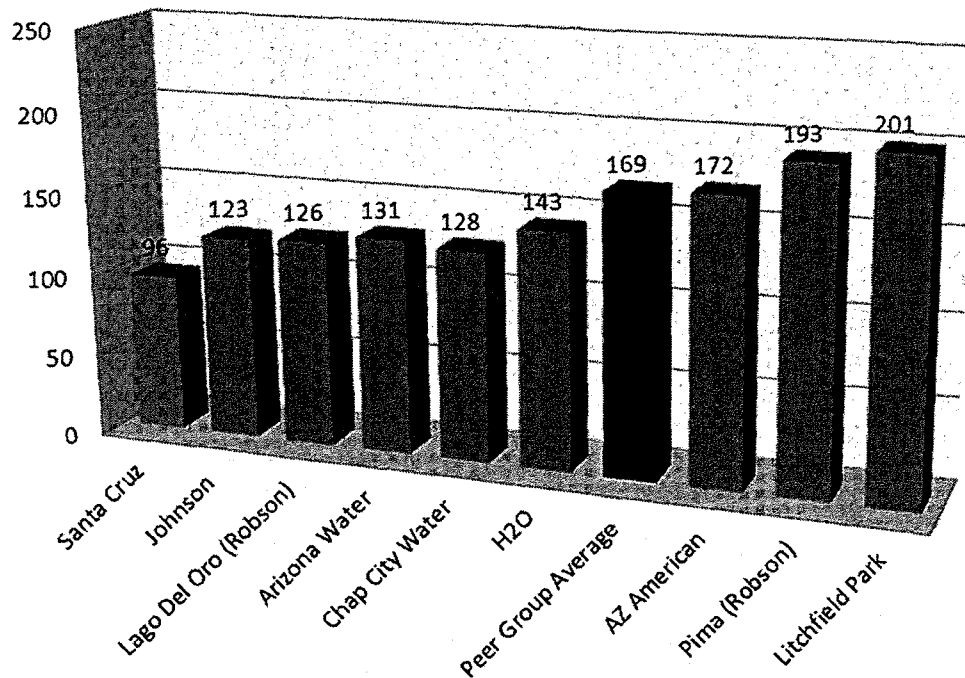
2 A. As a result of our strong focus on conservation, our utilities fare well. As with the expense
3 comparison, we used the annual reports on file with the Commission to prepare a
4 comparison. Each of our utilities use less per customer than the peer group average. This
5 indicates that Global's Total Water Management approach to conservation and planning
6 has real results.

7
8 Santa Cruz benefits from an extensive system that provides recycled water throughout the
9 community, thus reducing potable water use. As shown in Mr. Hill's testimony, this
10 allowed Global Water to save over 3 billion gallons of groundwater in Maricopa in less
11 than ten years.

12
13 But even Global's other utilities use less water per customer than the average utility. We
14 are able to achieve these conservation levels through the innovative rate design we
15 proposed, and the Commission approved, in Global Water's last rate case. The rate design
16 includes a special rebate provided to customers that use less than a specified amount, as
17 well as a six tier rate design. As shown in Ed Borromeo's testimony, we have also focused
18 on increasing the amount of information available to customers. When combined, these
19 two factors – information and rate design – result in significant conservation of water.

20
21 The results of our comparison of Santa Cruz to our peer group is shown in the chart below:
22
23
24
25
26
27

Gallons Sold Per Customer (1,000s) 2011



Santa Cruz is 43% below the peer group average.

IV. CAGRD Adjustor Mechanism.

Q. What is the Central Arizona Groundwater Replenishment District or CAGRD?

A. It is established under Arizona law to replenish groundwater in central Arizona. It is a department (not a separate district) within the Central Arizona Water Conservation District, commonly known as CAP.¹ It is governed by CAP's board of directors. It covers CAP's three county service area (Maricopa, Pinal and Pima counties). However, landowners or service providers must enroll their lands within the CAGRD to participate in the CAGRD program. The CAGRD program is designed to assist with compliance with Arizona's assured water supply rules.

¹ <http://www.cagr.com/static/index.cfm?contentID=84>

1 **Q. What does CAGR D do?**

2 A. At the most basic level, it collects fees from landowners or water service providers, and
3 then uses those fees to purchase water (such as excess surface water, or recycled water),
4 and it then injects the water into the ground. This compensates for groundwater
5 withdrawals.

6
7 **Q. Why not directly use the water CAGR D purchases?**

8 A. Often, CAGR D lands do not have access to surface water such as CAP water. In addition,
9 some water purchased by CAGR D may not be suitable for direct potable use.

10
11 **Q. Who must pay CAGR D fees?**

12 A. All CAGR D members pay a certain amount per acre-foot annually according to a rate
13 determined each year by the CAGR D. The rate is computed separately for each Active
14 Management Area (AMA) to offset the projected costs of replenishment activities in the
15 AMA, and is based on the four assessment rate components shown in the table below:

16

Assessment Rate Components	Cost Basis
Administrative*	Total cost of administering the CAGR D
Water & Replenishment**	Cost to purchase, transport and recharge/replenish water supplies
Infrastructure & Water Rights**	Costs of securing water rights and developing infrastructure to deliver and replenish water, including capital costs
Replenishment Reserve Charge**	Costs to establish and maintain a replenishment reserve for each AMA
*Uniform across AMAs	
**Computed separately for each AMA	

23

24 Each Member Service Area provider reports annually the volume of excess groundwater² it
25 has delivered within its service area and pays, directly to the CAGR D, a tax equal to the

26
27 ² An amount of groundwater equal to that delivered to a member land or member service area in a calendar year in excess of the amount of groundwater that may be used at the member land or

1 AMA replenishment assessment rate multiplied by that volume of excess groundwater.

2 When an individual subdivision joins as a Member Land, the owner executes an
3 irrevocable "declaration of covenants, conditions, and restrictions" that obligates current
4 and future owners (that is, individual homeowners) to pay for CAGRDR replenishment
5 based on the total volume of excess groundwater delivered to each parcel within the
6 Member Land. The applicable parcel assessment appears on the property tax bill of each
7 property owner within the Member Land.

8
9 So the fee structures are different for Member Lands and Member Service Areas. Member
10 Lands are enrolled by the developer as part of obtaining a Certificate of Assured Water
11 Supply (CAWS). Member Land fees are paid by each landowner as part of their property
12 tax bill based on the gallons of water consumed.³

13
14 Member Service Areas fees apply to a designated provider. This fee applies to municipal
15 or private utilities that enroll their service areas in the CAGRDR. Such enrollment can be
16 necessary, in some cases, to obtain a Designation of Assured Water Supply (DAWS). The
17 CAGRDR then collects the fee directly from the utility. Municipal utilities typically recover
18 this fee in their rates, either as a separate "stand alone" fee on each bill, or as part of the
19 general water service rate.

20
21
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23
24
25 delivered by a municipal provider for use within its member service area in that calendar year
26 consistent with the applicable AWS rules for the active management area where the member land
27 or member service area is located (ARS §48-377.01).

³ Global Utilities have focused on obtaining DAWS and not CAWS for better water management
planning. In the DAWS service areas, the individual customers are not subject to this CAGRDR
property tax assessment. Instead, the Global Utilities are taxed, not the customer.

- 1 **Q. Please explain Central Arizona Groundwater Replenishment District fees.**
- 2 A. The CAGRDR reviews operating and capital expenses annually, and determines fees based
- 3 on those expenses. The CAGRDR provides firm and pro-forma projections on these fees
- 4 annually.
- 5
- 6 **Q. Do the Global Utilities currently pay CAGRDR fees?**
- 7 A. Not yet. However, WUGT received approval from the CAGRDR to enroll as a Member
- 8 Service Area in December 2011. Final acceptance as a Member Service Area will occur
- 9 when WUGT receives its Designation of Assured Water Supply ("DAWS") from ADWR.
- 10 At that time, WUGT will become subject to direct CAGRDR fees. Due to the benefits
- 11 related to water conservation and regional planning of resources of DAWS, it is important
- 12 that water utilities which elect to apply for a designation are provided this adjustment
- 13 mechanism to help offset the costs.
- 14
- 15 **Q. What is the status of WUGT's DAWS application?**
- 16 A. Global received a draft order from ADWR for approval of WUGT's DAWS. Global is
- 17 currently in discussions with ADWR regarding technical edits to the draft order. Once
- 18 those issues are resolved, ADWR will issue the order. We expect that an order will be
- 19 issued before the hearing in this case.
- 20
- 21 **Q. Has the Commission approved a CAGRDR adjustor before?**
- 22 A. Yes, they approved an adjustor for Johnson Utilities. In approving the adjustor, the
- 23 Commission noted the public benefits of having a DAWS and enrolling in the CAGRDR:
- 24 Conservation and wise stewardship of increasingly stressed water supplies is a
- 25 matter of paramount concern in Arizona, and we believe that it is important to
- 26 send appropriate signals to water companies regarding their duty to fully
- 27 engage in conservation programs administered by the ADWR. The CAGRDR
- assessment fee is not discretionary for Companies such as Johnson Utilities,
- and the Commission believes that the CAGRDR participation represents the
- kind of investment that is appropriate for timely cost recovery. To not allow

1 the Company to recover its CAGR costs in real time may threaten the
2 Company's ability to participate in the CAGR program and would send a
3 negative signal to water providers regarding this Commission's support for
4 sound regional approaches to achieving safe yield in Active Management
5 Areas.

6 (Decision No. 71854 (August 24, 2010) at pages 43-44).

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Q. What conditions did the Commission impose in the CAGR adjustor?

A. The Commission imposed 9 conditions⁴:

1. The initial adjuster fee shall apply to all water sold after the date new rates from this case become effective. In order to calculate this initial fee, the Company shall submit the 2008 data, as per condition No. 7 below, within 30 days of the date of the final order in this matter.
2. The Company shall, on a monthly basis, place all CAGR monies collected from customers in a separate, interest bearing account ('CAGR Account').
3. The only time the Company can withdraw money from the CAGR Account is to pay the annual CAGR fee to the CAGR, which is due on October 15th of each year.
4. The Company must provide to Staff a semi-annual report of the CAGR Account and CAGR use fees collected from customers and paid to the CAGR, with reports due during the last week of October and the last week of April each year.
5. The Company must provide to Staff, every even-numbered year (first year being 2010) by June 30th, the new firm rates set by the CAGR for the next two years.
6. The CAGR adjustor fees shall be calculated as follows: The total CAGR fees for the most current year in the Phoenix AMA shall be divided by the gallons sold in that year to determine a CAGR fee per 1,000 gallons. Similarly, the total CAGR fees for the most current year in the Pinal AMA shall be divided by the gallons sold in that year to determine a CAGR fee per 1,000 gallons.
7. By August 25th of each year, beginning in 2010, the Company shall submit for Commission consideration its proposed CAGR adjustor fees for the Phoenix and Pinal AMAs, along with the calculations and documentation from the relevant state agencies to support the data used in the calculations. Failure to provide such documentation to Staff shall result in the immediate cessation of the CAGR adjustor fee. Commission-approved fees shall become effective on the following October 1st.

⁴ See Decision No. 71854 at 38-39.

1 8. If the CAGRD changes its current method of assessing fees (i.e. based on
2 the current volume of water used by customers) to some other method, such
3 as, but not limited to, future projection of water usage, or total water
4 allocated to the Company, the Company's collection from customers of
5 CAGRD fees shall cease.

6 9. As a compliance item, the Company shall submit a new tariff reflecting the
7 initial adjustor fee as per Condition No. 1 above and shall annually submit a
8 new tariff reflecting the reset adjustor fee prior to the fee becoming
9 effective.

10 **Q. Does Global accept these conditions?**

11 **A.** Yes, although the dates should be updated to reflect a rate order issued in 2013.

12 **V. Memorandum of Understanding (MOU) fees adjustor.**

13 **Q. Please explain the MOU agreements signed by Global.**

14 **A.** Global believes very strongly in developing good relationships with the communities
15 served by the Global Utilities. This includes the need for cooperation with the cities we
16 serve. The MOUs serve to formalize the close relationship we have developed with these
17 cities and provide a number of benefits to both parties:

- 18 • Close cooperation on water conservation measures;
- 19 • Mutual exchange of development information, such as building permits, GIS data
20 and water hook-ups;
- 21 • Coordination of Regional Planning;
- 22 • Coordination of the City's obligation under Arizona's Growing Smarter legislation;
- 23 • Expedited processing of certain permits;
- 24 • A commitment to meet and discuss issues often; and
- 25 • Access to public streets rights of way.

26 **Q. How many MOUs has Global signed?**

27 **A.** Global has MOUs of this nature with the City of Maricopa, the City of Casa Grande, and

1 the City of Eloy.

2
3 **Q. How do the MOUs relate to water conservation?**

4 A. One of the main reasons the cities signed the MOUs was their deep concern about future
5 water resources. They fully understood the benefits of integrated utilities that can provide
6 state-of-the-art water conservation, such as the Global Utilities "Total Water Management"
7 program. Indeed, the MOUs provide for close cooperation on water conservation measures
8 related to properly planned and constructed utilities as well as education and conservation
9 programs directed at customers.

10
11 **Q. Please explain Global's proposed pass-through of MOU fees.**

12 A. There are two components to the fees due under the MOUs. The first fee is to be paid by
13 Global Water Resources, Inc. (Global Parent) based on a set amount for each new meter
14 hook-up. We are not proposing any rate treatment of that fee.

15
16 The second fee is a franchise-like fee based on water, wastewater and recycled water
17 revenues earned within the cities' municipal planning areas. This franchise-like fee is
18 specifically linked to the "operating/license agreement" that allows the Global Utilities to
19 use the public rights of way. The Global Utilities request that this revenue-based fee be
20 recovered through a pass-through mechanism.

21
22 **Q. How were the MOU fees treated in Global's last rate case?**

23 A. The Commission did not approve a pass through mechanism for the MOU fees. Instead,
24 the MOU fees were treated as test year expenses allowed in rates.

25
26 **Q. Why should a pass-through be approved for these MOU fees?**

27 A. Because the MOU fee is based on gross revenues, it is very similar to sales taxes, which

are recovered on a pass-through basis. If a pass-through mechanism is not approved, a significant lag could occur between an increased MOU fee (due to increased gross revenues), and when those fees are recognized in rates. Because future growth rates are not knowable, and could be highly variable, it makes sense for this fee to be recovered on a pass-through basis. Again, because the fee is a percentage of gross revenue, it is easy to calculate and directly varies based on gross revenue. In essence, it is a sort of contractual sales tax, and should be recovered in the same way sales taxes are recovered.

VI. Post test year plant.

Q. What is Global proposing in this case with regards to post-test year plant?

A. We are proposing that the Commission recognize the following post test year plant for inclusion in rate base:

GLOBAL WATER - SANTA CRUZ WATER COMPANY

Plant Name	Date Construction Commenced	Expected Construction Completion Date	Cost
Edison Road Waterline Extension	Aug 2012	Aug 2012	\$ 300,742
RED WDC Chlorination System Replacement	Jan 2012	Feb 2012	\$ 6,149

GLOBAL WATER - PALO VERDE UTILITIES COMPANY

Plant Name	Date Construction Commenced	Expected Construction Completion Date	Cost
Campus I WRF Ph 3 Expansion	November 2008	June 2012	\$ 119,810
PVUC In Pipe Odor Control	March 2012	June 2012	\$ 52,022
PVUC Lagoon Clean Closure and Conversion	April 2012	July 2012	\$ 406,949
PVUC PEQB	April 2012	July 2012	\$ 12,564

SRW MH Rehabilitation and LS Improvement Phase I	December 2010	February 2012	\$ 6,408
PVUC WRF Headworks Rehab	September 2012	September 2012	\$ 69,132
Sewer Manhole Rehab	October 2012	October 2012	\$ 66,509
Edison Road Sewer line Extension	August 2012	August 2012	\$ 85,000

WILLOW VALLEY WATER COMPANY

Plant Name	Date Construction Commenced	Expected Construction Completion Date	Cost
WVR SCADA - WVWC	October 2012	October 2012	\$ 80,436

WATER UTILITY OF GREATER TONOPAH

Plant Name	Date Construction Commenced	Expected Construction Completion Date	Cost
West Phoenix 6 Electrical Upgrades	November 2012	December 2012	\$ 3,076
West Phoenix 6 Fluoride	November 2012	December 2012	\$ 8,625
WPE 6 Tank and Well Replacement	May 2012	June 2012	\$ 95,082

VALENCIA WATER COMPANY

Plant Name	Date Construction Commenced	Expected Construction Completion Date	Cost
Bales Fill Line	July 2012	July 2012	\$ 78,750
Buena Vista Fill Line	July 2012	July 2012	\$ 203,702
Pima Road Waterline	April 2012	April 2012	\$ 182,563
WVR SCADA Command Station Improvements	July 2012	July 2012	\$ 136,029
SVWDC Optimization	June 2012	June 2012	\$ 71,526

1 **Q. Why should the Commission allow post-test year plant in rate base?**

2 A. In every instance above, the post-test year plant should be in service prior to the hearing
3 date expected in the case. Therefore, we will provide Staff with all the invoices for the
4 plant and Staff will be able to conduct an engineering assessment to ensure the plant is in
5 service and used and useful prior to the hearing.

6
7 **Q. How will this benefit the customers?**

8 A. This approach will benefit our customers by reducing the need for a subsequent rate case
9 by including used and useful plant into rate base and therefore reducing the effect of
10 regulatory lag on the Global Utilities.

11
12 **Q. How will this benefit the Commission?**

13 A. This will benefit the Commission in two ways. First, as with our customers, this will
14 reduce the need for a subsequent rate case by including used and useful plant into rate base
15 and therefore reducing the effect of regulatory lag on the Global Utilities. Second, it will
16 benefit the Commission by enacting a new approach to water and wastewater company
17 ratemaking and directly addressing the regulatory lag issue which has been a constant
18 critique of the Arizona regulatory situation. See, e.g., Janney Montgomery Scott, and S&P
19 Assessments of U.S. Regulatory Models.

20
21 I believe the Staff's recent recommendations in the in response to the recent water
22 workshops⁵ and in its Sustainable Water Improvement Plan (SWIP) proposal each
23 specifically address the issue of AFUDC plant in an attempt to mitigate the effects of and
24 reduce the amount of regulatory lag. Allowing a reasonable amount of post test year plant
25 is another step in this direction.

26
27

⁵ Staff Report filed on March 19, 2012 in Docket No. SW-20445A-09-0077 et al.

1 **Q. How will this benefit the Global Utilities?**

2 A. This will benefit the Global Utilities by significantly reducing our regulatory lag and
3 allowing recovery of used and useful plant investment.
4

5 **Q. Has the Commission approved post-test year plant in any recent rate cases?**

6 A. Yes, in fact in the last two Arizona Public Service Company rate cases, the Commission
7 has approved post-test year plant additions for eighteen and fifteen months. The
8 Commission also approved the most recent APS rate case in May 2012 in which the
9 Commission also agreed to "hold open" the rate case to allow APS to include a nearly
10 \$300 million acquisition of Southern California Edison's ownership interests in the Four
11 Corners Generating Station.
12

13 In response to those Decisions, the financial markets reacted positively and praised the
14 Commission for dealing with the problem of regulatory lag. Without question, those
15 decisions and actions have benefitted APS' customers and investors and have improved the
16 financial markets' view of the investment dynamics in Arizona. It is definitely time for the
17 Commission to begin taking similar steps with regard to the water industry.
18

19 **Q. Is Global proposing post-test year plant adjustments similar to those approved in the**
20 **APS decisions?**

21 A. No, in this case the post-test year plant adjustments we are proposing are for less than six
22 months' of adjustments subsequent to our rate case application. Most likely, we will be
23 looking at four or five months of plant – and all of it will be in service prior to the hearing
24 in this case. Furthermore the total amount of plant adjustments, for all our companies
25 combined, will be less than \$2 million.
26

27 By way of comparison, the 2009 APS Rate Case Decision allowed \$199 million of post-

test year plant into rate base. See Page 199 of 532 of Staff's Filing of Direct Testimony dated December 19, 2008, in Docket No. 08-0172:

Arizona Public Service Company
Post-Test Year Plant Additions
Test Year Ended December 31, 2007

Docket No. E-C-1245A-08-0172
Schedule B-1
Page 1 of 5

Line No.	Description	Total Company Amount	ACC Jurisdictional Amount	Reference
		(A)	(B)	
	Allowance for Miscellaneous Post-Test Year Plant Additions			
1	Per APS Filing	\$ 291,257,329	\$ 244,823,854	Col. J, below
2	Staff Recommendation	\$ 285,248,114	\$ 190,618,432	Col. D, below
3	Adjustment to Post-Test Year Plant Additions	<u>\$ 445,969,213</u>	<u>\$ 445,396,182</u>	Col. K, below

The 2012 APS Rate Case Decision allowed \$226 million of post-test year plant into rate base.⁶

ACC Jurisdiction of 15-Months of Solar Generation Post-Test Year Plant Additions:

Gross Utility Plant in Service	\$ 232.573M
Less: Accumulated Depreciation & Amortization	<u>3.391M</u>
Net Utility Plant in Service	229.182M
Less: Total Deductions	<u>2.476M</u>
Total Additions	-
Total Rate Base	<u>\$ 226.706M</u>

Notably, this \$226 million provided to APS does not include the expected \$297 million adjustment to be allowed into rates when APS completes its acquisition of the Four Corners Generating Station.

All told, in the past three years, the Commission has approved \$722 million of post-test year adjustments for APS. APS's 2012 Decision provided a rate base of \$8.167 billion. In percentage terms, about 9% of APS's rate base will be derived from post-test year adjustments.

⁶ See page 68 of 115 of the APS Settlement in Docket No. 11-0224.

1 By way of comparison, Global's rate base would have less than 2 percent derived from
2 post-test year adjustments under our proposal.

3
4 **VII. Willow Valley treatment costs.**

5 **Q. What improvements have been made to Willow Valley's production systems since the**
6 **last rate case?**

7 **A.** Ongoing issues in the Willow Valley system required a number of treatment upgrades. In
8 December 2011, Willow Valley completed chlorine dioxide generator facility
9 improvements to the Unit-17 and Cimarron water production sites, as well as instituting a
10 corrosion control chemical system. The treatment upgrades were necessary to ensure that
11 the systems meet the requirements of EPA's Lead and Copper Rule, as well as
12 Disinfectants and Disinfection By-Products rules. However, the upgrades will result in
13 significantly increased treatment expenses for Willow Valley. Because the treatment
14 upgrades were completed in December 2011, the 2011 test year does not include these
15 increased treatment expenses. This testimony provides engineering and cost detail to
16 support the pro-forma adjustment to test year expenses for these treatment upgrades.

17
18 **Q. Why were these improvements needed?**

19 **A.** As already noted, when Global acquired the Willow Valley system in the summer of 2006,
20 the system was in poor shape and was not chlorinated. Chlorination is standard practice
21 for Global Water in order to protect public health, and so chlorination was initiated
22 immediately, which in turn resulted in immediate water aesthetic issues.

23
24 As chlorine can act as both a disinfectant and oxidant, the Willow Valley system has
25 experienced a number of challenging water quality issues associated with oxidation of high
26 concentrations of iron, manganese and total organic carbon (TOC) levels in the source
27 water. In order to address the original water quality challenges related to discoloration due

1 to the reaction of high concentrations of iron and manganese with chlorine,
2 oxidation/filtration units were installed at the groundwater sources in 2007 and 2008.
3 Additionally, in 2009, the Federal Environmental Protection Agency (EPA) enacted the
4 Groundwater Rule of the Safe Water Drinking Act (SWDA). In response to the
5 requirements of this rule, Global installed continuous monitoring to ensure the necessary
6 chlorine residual is maintained at all times.

7
8 Although aesthetic water quality was improved, compliance issues related to copper
9 corrosion and high total trihalomethane formations resulted. To resolve these issues, in
10 2010 a corrosion control study was conducted. This study concluded water corrosion
11 chemistry can be affected by groundwater treatment techniques. In the case of Willow
12 Valley, incidental cuprosolvency (copper solvency) is caused by a number of factors
13 related to the treatment and disinfection of groundwater. For this system, slow oxidation
14 reactions due to organically bound metal compounds caused by high levels of TOC in the
15 raw water source, are caused by extended use of oxidants related to iron and manganese
16 removal. Coupled with the incidental aeration and increased Dissolved Inorganic Carbon
17 (DIC) concentrations related to the iron and manganese filtration process, these factors are
18 the leading causes of increased copper solvency of the water. To offset cuprosolvency
19 effects of the water in the Willow Valley distribution system, the following improvements
20 were required to be implemented:

- 21 • Oxidant levels must be managed in the distribution system.
- 22 • Oxidant levels must be managed in the pretreatment process of the iron and
- 23 manganese filtration process.
- 24 • TOC compounds must be oxidized and removed prior to disinfectant application.
- 25 • Chlorine compounds must be managed in the distribution system.
- 26 • Chloride compounds must be reduced to allow alkaline components to provide
- 27 naturally occurring protective films between the contact water and exposed metal
piping.

1 These areas were effectively addressed utilizing the following process changes and/or
2 capital improvements:

- 3
- 4 • Add oxygen scavenging inhibitors to reduce available dissolved oxygen and in
turn, reduce oxidation potential of the contact water.
- 5 • Change pre-oxidant chemical for TOC, iron and manganese removal to non-
6 chlorine base oxidant.
- 7 • Improve pre-oxidation techniques by adding in-line static mixers to improve
oxidation efficiency.
- 8 • Move chlorine disinfectant to the discharge side of the pressure boosting station.
9 Improve disinfectant dispersion by adding an in-line static mixer to the booster
station discharge piping.
- 10 • Add corrosion control chemicals to offset damage to naturally occurring protective
11 films from excessive chloride and sulfate concentrations, and sequester iron and
manganese concentrations in the finished water.
- 12 • Reduce pre-oxidant requirements and improve TOC, iron and manganese removal
13 through the addition of manganese dioxide, manganese greensands or other filter
media as required per site.
- 14 • Remove excessive chloride and/or sulfate levels of the source water through
15 additional treatment techniques.

16 These recommendations led to bench scale piloting of alternative oxidants in 2011
17 including chlorine dioxide, and potassium permanganate, as well as corrosion control using
18 two polyphosphates which were evaluated to resolve the water quality issues.

19 Additionally, a field pilot study included:

- 20
- 21 • THM Control – Alternative liquid chlorine dioxide oxidant system replacing the
sodium hypochlorite oxidant;
- 22 • Disinfection control - chlorine gas replacing the sodium hypochlorite disinfectant
23 system;
- 24 • Corrosion control – Tetrasodium Pyrophosphate Corrosion inhibiting chemical feed
systems; and
- 25 • Solids Handling – Incorporate cone bottom settling tanks to improve solids capture.
- 26

27 The following summarizes the documented water quality results of the resultant

1 installation of chlorine dioxide generator facility improvements to the Unit-17 and
2 Cimarron water production sites completed in December of 2011.

- 3 • Total copper levels in the King Street Distribution System decreasing by as much
4 as 61%, and all lead and copper samples conducted in 2011 and 2012 indicate
5 compliance with regulatory standards.
- 6 • Total copper levels in the Cimarron Distribution System decreasing by as much as
7 65%, and all lead and copper samples conducted in 2011 and 2012 indicate
8 compliance with regulatory standards.
- 9 • Total Organic Carbon (TOC) levels decreasing by as much as 11%
- 10 • Total Trihalomethane (TTHM) levels decreasing by as much as 41%, and all
11 samples throughout the pilot program and in 2011 and 2012 indicate compliance
12 with regulatory standards
- 13 • Iron removal - average of 98.8%.
- 14 • Manganese removal - average greater than 85%.

15 Since completion of these improvements, the WWWC has had five consecutive quarters of
16 full regulatory compliance.

17 **Q. How will these treatment upgrades impact Willow Valley's expenses?**

18 **A.** Unfortunately, while these results are exceptional, Willow Valley's treatment expenses
19 will significantly increase. Since much pilot study work was conducted during the 2011
20 operating year, we used the 2010 operating year as the production cost model that most
21 represents current production costs prior to implementation of alternative oxidant and
22 corrosion control measures. As the same chemical (sodium hypochlorite) was used for
23 oxidation and disinfection purposes, the total 2010 production cost is represented by the
24 total power cost and the total sodium hypochlorite chemical costs for the 2010 operating
25 year.

26 The full scale improvements related to alternative oxidants, disinfection and corrosion
27 control received formal Approval of Construction from ADEQ and was formally placed
into service in late December of 2011. Process optimization of the newly added assets

took place during the months of January and February 2012. Therefore production cost data from the operating period of March - 2012 were used as the production costs model that most represents current production costs post implementation of alternative oxidant and corrosion control measures.

Comparing these costs with the total water produced equates to the following metrics:

Table 1 - Unit Cost of Production 2010.

Site Location	Production (kGal)	Oxidant & Disinfection (\$)	Power (\$)	Prod Cost (\$/kGal)
Unit 17 (2010)	104,209	11,823	26,152.38	\$0.36
Cimarron (2010)	12,306	1,395.02	5,189.71	\$0.54

Table 2 - Unit Cost of Production March 2012

Site Location	Production (kGal)	Oxidant (\$)	Disinfection (\$)	Corrosion Inhibitor (\$)	Power (\$)	Prod Cost (\$/kGal)	% Cost Increase
Unit-17 (3/2012)	5,976	1,848.62	305.31	87.41	1948.81	\$0.70	94.4
Cimarron (3/2012)	872	258.67	42.64	11.78	576.03	\$1.07	98.1

From these tabulated results, the water production cost for Unit 17 and Cimarron production sites utilizing the newly installed treatment techniques have increased 94.4 and 98.1 % respectively comparable to prior treatment techniques. This increase translates into the following projected monthly increase in production cost:

Projected Monthly Increase – Cimarron Production Site

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Prod (Kgal)	741	671	807	743	898	944	935	1,229	1,121	1,112	801	724	5,792

Prod(\$) 2010	\$400	\$362	\$436	\$401	\$485	\$510	\$505	\$664	\$605	\$600	\$433	\$391	\$5,792
Prod(\$) 2012	\$793	\$718	\$863	\$795	\$961	\$1,010	\$1,000	\$1,315	\$1,199	\$1,190	\$857	\$775	\$11,477
Change (\$)	\$393	\$356	\$428	\$394	\$476	\$500	\$496	\$651	\$594	\$589	\$425	\$384	\$5,685

Projected Monthly Increase – Unit 17 Production Site

	Jan	Feb	March	April	May	June
Prod (Kgal)	5,931	5,857	7,039	7,519	9,303	8,303
Prod(\$) 2010	\$2,135	\$2,109	\$2,534	\$2,707	\$3,349	\$2,989
Prod(\$) 2012	\$4,152	\$4,100	\$4,927	\$5,263	\$6,512	\$5,812
Change(\$)	\$2,017	\$1,991	\$2,393	\$2,556	\$3,163	\$2,823

	July	Aug	Sept	Oct	Nov	Dec	Total
Prod (Kgal)	9,467	9,975	7,514	6,543	8,728	4,875	91,054
Prod(\$) 2010	\$3,408	\$3,591	\$2,705	\$2,355	\$3,142	\$1,755	\$32,779
Prod(\$) 2012	\$6,627	\$6,983	\$5,260	\$4,580	\$6,100	\$3,413	\$63,738
Change(\$)	\$3,129	\$3,392	\$2,555	\$2,225	\$2,968	\$1,658	\$30,958

Engineering and data were provided by Joel Wade. Mr. Wade is currently the Process Engineering Manager for Global Water. His experience in the design, development, operation and management of advanced water and wastewater treatment technologies spans over 25 years. His diverse background as facility manager, designer and technical consultant has led to the successful start-up and procurement of eleven treatment facilities, ranging from 0.250 to 180 MGD. He has also provided consulting services for numerous individual facilities, including project engineering, planning and investigation, civil design, technical research, development and efficiency evaluation. Mr. Wade was instrumental in

1 the design, construction and start-up of the first wastewater membrane treatment facility in
2 the state of Arizona.

3
4 Mr. Wade holds a Bachelor of Science Degree in Civil Engineering as well as Masters
5 Degree in Business Administration and maintains all four Grade-Four Operator
6 Certifications issued by the Arizona Department of Environmental Quality (ADEQ). Mr.
7 Wade has been employed with Global Water since April of 2005.

8
9 **Q. Please summarize your testimony regarding the Willow Valley treatment costs.**

10 **A.** As part of our ongoing and extensive efforts to upgrade the Willow Valley system, in
11 December 2011 we installed significant treatment upgrades. These upgrades will allow
12 Global to meet regulatory requirements for Willow Valley, but the related treatment
13 expenses are not included in test year expenses. Because the increased expenses are
14 known and measurable, and because they are necessary for regulatory compliance, the
15 increased expenses should be allowed for recovery in rates.

16
17 **VIII. Tariffs.**

18 **A. Tariff Overview.**

19 **Q. What tariffs do the Global Utilities have?**

20 **A.** The current or pending tariffs of each of the Global Utilities are listed below:

21 **Global Water – Palo Verde Utilities Company**

22 (1) Rate Tariffs, approved by Decision No. 71878 (September 15, 2010), accepted for
23 filing by Staff November 5, 2010.

24 (2) Low Income Tariff, approved by Decision No. 72440 (June 27, 2011).

25 (3) Source Control Tariff, approved by Decision No. 71878 (September 15, 2010),
26 accepted for filing by Staff on November 19, 2010.
27

- 1 (4) Source Control Violation Tariff, approved by Decision No. 71878 (September 15,
2 2010), accepted for filing by Staff on June 17, 2011, as confirmed on August 10,
3 2011.

4 **Global Water – Santa Cruz Water Company**

- 5 (1) Rate Tariffs, approved by Decision No. 71878 (September 15, 2010), accepted for
6 filing by Staff November 5, 2010.
7
8 (2) Low Income Tariff, approved by Decision No. 72440 (June 27, 2011).
9
10 (3) Customer Meter Exchange Tariff, approved by Decision No. 72591 (September 15,
11 2011).
12 (4) Hydrant Meter Deposit Charge Tariff, approved by Decision No. 72590
13 (September 15, 2011), accepted for filing by Staff on February 17, 2012.
14 (5) Curtailment Tariff, accepted for filing by Staff on April 9, 2008 (Docket 04-0767).
15 (6) Cross-Connection / Backflow Prevention Tariff, accepted for filing by Staff on
16 August 17, 2009 (Docket 09-0218).
17 (7) BMP tariff. Ordered by Decision No. 71877. Filed November 15, 2010; revised
18 draft filed on June 1, 2012.

19 **Valencia Water Company (Town Division and Greater Buckeye Division);**

20 **Willow Valley Water Co., Inc. and Water Utility of Greater Tonopah, Inc.**

- 21 (1) Rate Tariffs, approved by Decision No. 71878 (September 15, 2010), accepted for
22 filing by Staff November 5, 2010.
23
24 (2) Low Income Tariff, approved by Decision No. 72440 (June 27, 2011).
25 (3) Customer Meter Exchange Tariff, approved by Decision No. 72591 (September 15,
26 2011).
27

- 1 (4) Hydrant Meter Deposit Charge Tariff, approved by Decision No. 72590
2 (September 15, 2011), accepted for filing by Staff on February 17, 2012.
3 (5) Curtailment Tariff, accepted for filing by Staff on June 30, 2004.
4 (6) Cross-Connection / Backflow Prevention Tariff, accepted for filing by Staff on
5 August 14 or 17, 2009 (Dockets 09-0217, 09-0220, and 09-0221).
6 (7) BMP tariff. Ordered by Decision No. 71787. Filed November 15, 2010; revised
7 draft filed on June 1, 2012.

8 **Water Utility of Northern Scottsdale, Inc.**

- 9 (1) Rater Tariffs, Approved by Decision No. 70562, approved by Staff for filing on
10 December 9, 2008.
11 (2) Curtailment Tariff, Approved by Staff for filing on August 16, 2005 (Docket 04-
12 0934).
13 (3) Cross-connection / Backflow Prevention Tariff, approved by Staff for filing on
14 August 17, 2009 (Docket 09-0219).
15

16 **Q. What are you recommending in this case?**

17 A. The tariffs listed above should remain in effect, except for the Best Management Practices
18 (BMP) tariffs. Further, the Low Income Tariff, Customer Meter Exchange Tariff, and
19 Hydrant Meter Tariff should be extended to Water Utility of Northern Scottsdale, and a
20 new Terms and Conditions tariff should be approved for each of the Global Utilities. I will
21 address each of these proposals in turn.
22

23 **B. BMP Tariffs.**

24 **Q. Why should the BMP tariffs be eliminated?**

25 A. In short, the ACC BMP tariffs are unnecessary and duplicative of requirements of the
26 Arizona Department of Water Resources (ADWR). While the goal of the BMP tariffs – to
27 promote water conservation – is laudable and supported in principle by Global who has

1 been at the forefront of groundwater conservation, imposing duplicative and cumbersome
2 requirements on utilities is not the way to achieve this goal.

3
4 Moreover, the BMPs are an ADWR program, and requiring them as ACC tariffs is
5 duplicative and cumbersome. In essence, we have one regulatory program being
6 administered by two different agencies. This can cause significant problems and
7 inefficiencies. For example, if ADWR requests a change in one of our BMPs, we would
8 have to go to the ACC get approval to change our tariff to implement the change requested
9 by ADWR, even though ADWR created the program in the first place. In addition,
10 ADWR may have one interpretation of a requirement, while the ACC adopts a different
11 interpretation of the requirement. In short, it simply makes sense to have one agency
12 administer the program, not two.

13
14 **Q. Are there any other potential reasons to eliminate the BMP tariffs?**

15 **A.** Yes. While I am not a lawyer, I understand that there may be a legal issue. In 2010, the
16 Arizona legislature passed a law that states: "Unless specifically authorized by statute, an
17 agency shall avoid duplication of other laws that do not enhance regulatory clarity and
18 shall avoid dual permitting to the extent practicable." A.R.S. § 41-1002(D). The Global
19 Utilities will address this legal issue in their brief.

20
21 **Q. Would elimination of the BMP tariffs reduce Global's BMPs emplaced?**

22 **A.** No. Currently we exceed the Commission requirements of three or ten BMPs per system,
23 depending on utility size. Eliminating the Commission's redundant regulation of our
24 BMP compliance with ADWR would not reduce our BMPs.

1 **C. Additional tariffs for WUNS.**

2 **Q. Please explain why WUNS does not have a Low Income Tariff, a Customer Meter**
3 **Downsizing Tariff, or a Hydrant Meter Deposit Tariff.**

4 **A.** These tariffs were added as a result of Global's most recent rate case order, Decision No.
5 71878 (September 16, 2010). Water Utility of Northern Scottsdale (Northern Scottsdale)
6 was not a part of that case, and accordingly the tariffs approved in that docket do not apply
7 to Northern Scottsdale. For the same reasons the tariffs are reasonable and appropriate for
8 the other Global Utilities, they are reasonable and appropriate for WUNS. Thus, these
9 tariffs should be extended to cover WUNS.

10
11 **D. Terms and Conditions Tariff.**

12 **Q. Please describe Global's Terms and Conditions Tariff.**

13 **A.** Many companies have a "Terms and Conditions" or "Rules and Regulations" tariff that set
14 forth many details of service. Some examples include Arizona-American Water Company
15 (now EPCOR Water), Arizona Water Company, Johnson Utilities and Tucson Electric
16 Power Company. These tariffs contain important features that protect the utility and
17 ratepayers, as well as providing greater detail on a number of points. In most cases, these
18 tariffs restate the entirety of the Commission's rules regarding the utility service, as well as
19 providing additional terms and conditions. A copy of Global's proposed Terms and
20 Conditions Tariff is included as Attachment Fleming-4.

21
22 In order to simply Staff's review, we have elected to not reproduce the Commission's
23 water service rules (A.A.C. R14-2-401 to 410). Instead, we simply reference these rules in
24 the tariff.

1 However, because the Commission has not adopted specific rules regarding recycled water
2 (reclaimed water) service, the proposed tariff specifies the rules applicable to recycled
3 water service and non-potable water service.

4
5 Lastly, we add a few provisions taken directly from the other tariffs previously approved
6 by the Commission.

7
8 **Q. Please discuss the provision regarding non-potable water service, including recycled**
9 **water service.**

10 A. This service is typically provided by the wastewater utility. However, the wastewater rules
11 do not have provision for meters. Thus, the Global Utilities propose that the billing and
12 collection and termination of service rules found in the Commission's wastewater rules be
13 applied to non-potable water service, because non-potable service is typically included in
14 the customer's bill from the wastewater utility. Likewise, the wastewater main extension
15 rules should apply, because a non-potable water main extension would likely be with the
16 wastewater utility. However, the remaining issues (such as meter reading) should be
17 governed by the water rules, because the wastewater rules do not have provisions regarding
18 meters.

19
20 **Q. Please discuss Section 4 of the Terms and Conditions Tariff, regarding electronic**
21 **billing.**

22 A. The current water and wastewater billing rules were written many years ago, when
23 communication with customers was by mail. This proposed section updates the rules to
24 clarify the rules applicable to bills sent by methods other than mail. This codifies the
25 Company's existing practice for customers who chose to receive bills by a method other
26 than mail. A customer may always choose to receive a traditional paper bill by mail. This
27

1 section is taken from Section 11(J)(1) of the Rules and Regulations Tariff of UNS Electric,
2 Inc., (effective January 21, 2011)(page 53 of 56).

3
4 **Q. Please discuss Section 5 regarding liability limitations.**

5 A. Liability limitations are common features of utility tariffs. Some Arizona utilities with
6 ACC-approved liability limitations include Arizona Public Service Co., Tucson Electric
7 Power Co., UNS Gas, Inc., UNS Electric, Inc., Southwest Gas Corp., Arizona Water
8 Company, Johnson Utilities, CenturyLink, and Cox Arizona Telecom. Liability limitations
9 protect the Company's financial ability to provide service. In addition, they protect
10 ratepayers from potentially being responsible for rates based on liability imposed on the
11 Company. The specific provisions included in Section 5 were taken from tariffs of
12 Arizona Water Company and UNS Electric, Inc. In particular, Section 5.1 is taken from
13 Arizona Water Company Tariff TC-243, Section X(B) (effective July 1, 2010). Section
14 5.2 is taken from Arizona Water Company Tariff TC-243, Section XI(A) (effective July 1,
15 2010). Sections 5.3 to 5.7 are taken from Section 7(F) of UNS Electric, Inc.'s Rules and
16 Regulations Tariff (effective January 21, 2011)(page 53 of 56).

17
18 **E. Individual Case Basis (ICB) tariff.**

19 **Q. Are the Global Utilities requesting any additional tariffs?**

20 A. Yes, the Global Utilities also request that the Commission authorize an Individual
21 Case Basis (ICB) tariff. The tariff would allow the Global Utilities to take advantage
22 of unique situations. Any revenue generated under the tariffs would be considered
23 regulated revenue and would help reduce the revenue requirement in future rate cases.

24
25 **Q. What kinds of situations would be covered by the ICB tariff?**

26 A. An example would be an agreement to provide an interconnection and bulk service to a
27 neighboring utility. The Company's existing tariffs and rate design are not designed for

1 this situation. Another example would be a customer who desires off-peak service. For
2 example, an industrial customer may have on-site storage, and would desire a reduced rate
3 in exchange for agreeing to take services only during non-peak hours. The same situation
4 could also arise with an irrigation customer.

5
6 We also had an industrial customer request that we provide bulk wastewater treatment
7 service. The customer was located outside of the service area, and proposed trucking the
8 wastewater to the company's wastewater treatment plant.

9
10 Lastly, this tariff would also allow the Company to address situations where a large
11 customer makes a realistic threat to bypass the company's services and provide services to
12 themselves. For example, the Ft. Mohave tribe (the largest customer of Willow Valley
13 Water Company) has indicated that they would consider building their own water system if
14 their rates get too high. An ICB tariff would allow the Company to make reach an
15 agreement with the customer, rather than losing all of the customer's revenue.

16
17 **Q. Has the Commission approved such tariffs in the past?**

18 **A.** Yes. CenturyLink and Cox Arizona Telecom both have ACC-approved ICB tariffs.⁷
19 The proposed tariff language below is taken from the CenturyLink tariff:

20
21 In lieu of the rates otherwise set forth in the Company's tariffs, rates and charges
22 including installation, special construction and recurring charges for Company
23 services may be established at negotiated rates on an Individual Case Basis,
24 taking into account the nature of the facilities and services, the costs of
25 construction and operation, and the length of service commitment by the
26 customer. Such arrangements will be set forth in individual contracts, and

25
26 ⁷ Cox Arizona Telecome, LLC, Arizona CC Tariff No. 1, Second Revised Page No. 103, Local
27 Exchange Service, Section 5 (effective June 7, 2009); Qwest Communications Corporation (d/b/a
CenturyLink) Arizona Tariff No. 3, Local Exchange Services, Section 2, Page 11, Release 1
(Effective February 3, 2007).

individual contract rates or charges will be made available to similarly situated customers on equal terms and conditions.

Q. Would Staff or Commission approval be required?

A. The existing CenturyLink and Cox tariffs do not require Staff or ACC approval. However, if this is a concern, the following language could be added to the tariff. "The Company will submit each proposed contract under this tariff to the Commission's Utility Division for their review and approval. The Utility Division will review the contract within 60 days of its submittal."

F. Low Income Relief Tariff and Program.

Q. Would you describe the current Low Income Relief Tariff and funding?

A. Global's Low Income Relief Tariff (LIRT) was approved in Decision No. 71878. The program is funded equally by Global shareholders and Global customers. The initial LIRT is capped at \$100,000 total annual funding (combined shareholder and customer funds) across Global Water's Arizona utilities, excluding the Water Utility of North Scottsdale only. Program funding is comprised of a Consumer Surcharge of \$0.11 per month, per connection, and an equal match of company funds.

Q. Would you describe the current Low Income Relief Program?

A. The Global Water Low Income Relief Program (LIRT) is administered by the Arizona Community Action Association (ACAA), in partnership with local Community Action Programs (CAPs). LIRT surcharge funds are transferred to the ACAA on a monthly basis. All funds, less ACAA and CAP administration fees, are then distributed to the local CAPs at least every six months. The available funds are distributed on a first come, first served basis to qualifying Global Water customers.

1 **Q. What are the basic qualifications of the Low Income Relief Program?**

2 **A.** The program is designed as a short term relief program. The program provides assistance
3 to residential customers in the Global Utilities service areas for their primary legal
4 residence only.

5 To qualify, applicants must:

- 6
- 7 1. Have no history of utility tampering (cutting locks, water theft, etc.).
 - 8 2. Have made a sincere effort to pay (used both of their annual payment
9 arrangements).
 - 10 3. Have household income equal to or less than 200% of the Federal Poverty
11 Guidelines.

12 **The 2009 Poverty Guidelines for the**
13 **48 Contiguous States and the District of Columbia**

Persons in family	Poverty guideline	Eligibility
1	\$10,830	\$21,660
2	\$14,570	\$29,140
3	\$18,310	\$36,620
4	\$22,050	\$44,100
5	\$25,790	\$51,580
6	\$29,530	\$59,060
7	\$33,270	\$66,540
8	\$37,010	\$74,020

14 For families with more than 8 persons, add \$3,740 for each additional
15 person

16 **Q. What are the program limits per customer?**

17 **A.** Benefit amounts are capped at \$250/year per customer/household. Funds may be used for
18 payment of monthly minimum and commodity charges, as well as for any of the following
19 fees incurred by the customer:

- 20
- 21 • Deposits
 - 22 • Late fees
- 23
- 24
- 25
- 26
- 27

- Reconnection charges
- Service fees
- Returned payment fees
- After hours service fees (where applicable)

Q. How many consumers could benefit from the program on an annual basis?

A. Assuming that the rate payers funded amount was \$50,000, and Global was to provide an equivalent in terms of funding and administrative overhead costs coverage, there would be \$90,000 per year for possible allocation. At the approved limit of \$250/year, the program could assist 360 families per year, or about 1% of our connections.

Q. To date, what amount of funding has been transferred to the ACAA?

A. As of April 30, 2012 a total amount of \$34,210.24 LIRT funding has been transferred to the ACAA. This amount is comprised of \$17,561.52 of LIRT surcharge and \$16,648.72 of matching company funds. Please reference the table below for amount by utility.

Company	Total through 30 Apr 2012		
	Global Match	Collected Surcharge	Total Combined Funds
Palo Verde Utilities Company	\$ 6,725.84	\$ 7,065.16	\$ 13,791.00
Santa Cruz Water Company	\$ 6,636.08	\$ 7,065.16	\$ 13,701.24
Valencia Water Company -- Town Division	\$ 2,208.80	\$ 2,353.46	\$ 4,562.26
Willow Valley Water Company	\$ 673.20	\$ 661.36	\$ 1,334.56
Water Utility of Greater Tonopah	\$ 137.28	\$ 142.79	\$ 280.07
Valencia Water Company -- Greater Buckeye Division	\$ 267.52	\$ 273.59	\$ 541.11
Total	\$ 16,648.72	\$ 17,561.52	\$ 34,210.24

1 **Q. Is Global proposing any changes to the Low Income Tariff and Program?**

2 **A.** No. The program is relatively new, and further experience is needed before the program is
3 before changes are proposed. However, as previously discussed, the tariff should be
4 extended to Water Utility of Northern Scottsdale.

5
6 **IX. Water Accounting/Water Loss.**

7 **Q. Can you please provide an update on Global Water's water loss mitigation plan?**

8 **A.** Global has continued to pursue the water loss plan filed with the Commission on
9 December 14, 2010 (included as Attachment Fleming-5). In accordance with this plan,
10 Global Water created an eight person "Water Loss Task Force" to carry out the water loss
11 mitigation plan. The Task Force consists of managers, supervisors, and certified operators
12 who have the experience and expertise to correct water loss issues. The team took a
13 holistic approach in order to address water loss within its Public Water Systems (PWS).
14 This approach included the following aspects:

- 15 ▪ Improvements to metering accuracy;
- 16 ▪ Commissioning of audits and inspections;
- 17 ▪ Implementing theft prevention programs; and
- 18 ▪ Implementing leak detection programs.

19 Below is a summary of how Global Water's Water Loss Task Force addressed each aspect
20 of the water loss mitigation efforts:

21
22 **A. Improvements to Metering Accuracy.**

23 A number of steps have been taken to ensure the accuracy of the meters within Global's
24 water distribution network. First, Global Water implemented a meter testing program in
25 2011. A total of 97 of the highest volume meters across Global's PWS were tested by a
26 certified contractor to verify the accuracy of each meter. Of the 97 meters tested, 45
27 meters were outside acceptable accuracy tolerance as established by AWWA standards and

1 were therefore replaced with new meters. Additionally, the meters that were replaced were
2 replaced with the proper meter specification; for example, high flow lines that previously
3 had positive displacement meters were replaced with turbine meters to further improve
4 accuracy.

5
6 **B. Audits and Inspections.**

7 An audit of Global Water's billing system is conducted periodically to ensure the settings
8 of the meter and Advanced Metering Infrastructure (AMI) system align with the settings in
9 the billing system to guarantee all metered water is accurately captured and billed. During
10 such audits, less than 50 individual accounts were discovered to have the incorrect billing
11 multiplier, typically off by a factor of 10, which ultimately results in only accounting for
12 10 percent of the actual water usage. Incorrect multipliers are fixed during the periodic
13 audits.

14
15 A similar individual account audit is completed when an account is identified through one
16 of the following reports:

- 17 ■ **Exception Reporting** – Unusual usage patterns are flagged during routine
18 reporting. These accounts are investigated, including field checks as
19 necessary.
 - 20 ■ **Zero Usage Reporting** - For all active accounts that have zero usage for
21 more than a single billing period, we issue a field investigation service
22 order.
 - 23 ■ **Manual reads and checks** – When the AMR systems do not capture a read,
24 it is Global's policy to issue a manual read service order to prevent
25 estimated or zero usage reads.
- 26
27

- 1 ▪ **High Consumption Reporting** – When an account registers abnormally high
2 water consumption the account is investigated and the customer is contacted if a
3 leak is suspected.
- 4 ▪ **Alerts and Reports** – The FATHOM read management platform and the
5 AMR systems themselves indicate many different failure or alert
6 conditions. For example, we utilize the Tamper or No Read reports
7 when the radio modules do not receive a read from the meter.

8 In addition to auditing the distribution systems of each PWS, operational personnel have
9 physically walked the waterlines to inspect the lines for breaks and leaks. In the event that
10 a leak is found the pipeline has been repaired to eliminate the water loss. The visual
11 inspection process is conducted on a regular basis, particularly when higher than normal
12 water loss is detected.

13 14 **C. Implementing Theft Prevention Programs.**

15 Global Water is continually watchful of indications of water theft. Through Global
16 Water's FATHOM platform, vacant account usage can be detected. If a vacant account
17 registers water consumption, a field investigation is generated and the meter is investigated
18 for tampering. If the lock on a vacant account is cut and theft is apparent, the meter will be
19 pulled to prevent further theft from occurring. In instances of repeated water theft, law
20 enforcement is called to address the theft. These are our only means of action as the ACC
21 previously denied our proposed water theft tariff.

22
23 Due to the remote location and sparse population within parts of Global Water's service
24 area, Greater Tonopah and Greater Buckeye are prone to water theft. Hydrant locks have
25 been deployed on the hydrants in Greater Buckeye's Sun Valley to prevent water theft
26 from occurring. Additionally, operations personnel diligently inspect the distribution
27 system to ensure no one has illegally by-passed the meter. When water theft is discovered,

1 the by-pass lines are immediately removed to prevent future theft from occurring. Lastly,
2 to the greatest extent possible Global has removed all unnecessary access points by
3 capping unused lines to minimize the opportunity for theft to occur.

4
5 **D. Implementing Distribution Leak Detection Programs.**

6 Global Water has diligently worked to reduce the water loss through the means listed
7 previously. Leak detection on the distribution mains has not yet been implemented due to
8 Global's attempt to exhaust all other water loss mitigation efforts prior to implementing
9 this more costly leak detection method. Based on the increased water loss in Valencia
10 Water Company, Global anticipates that it will initiate Distribution Leak Detection within
11 a zone known as "Historic Valencia", as the age and condition of the pipelines in this
12 vicinity are a potential cause of the increased water loss. We will then continue this
13 activity in other PWS as determined prudent.

14
15 **E. Test year water loss data.**

16 **Q. What are the results of Global Water's water loss mitigation efforts?**

17 **A.** For the purposes of calculating unaccounted-for-water, Global Water will use the
18 following accepted AWWA and industry standard.

19
$$\frac{((\text{Volume of Water Supplied} - (\text{Volume of Customer Billed Water} + \text{Volume of Authorized Usage}))}{$$

20
$$(\text{Volume of Water Supplied})$$

21 Below are the PWS that register greater than 10% water loss in the reporting period from
22 January 1, 2011 to December 31, 2011 and some of the contributing factors to water loss
23 as tracked within our FATHOM asset management platform. We have also compared these
24 values against our prior test year, 2008. Additionally, as we are beginning to see the
25 benefits from the activities discussed herein in many of our systems, we have included the
26 values for our current 12 month rolling annual average (RAA) from May 2011 to April
27

2012.

Willow Valley Water Company

08-129 Lake Cimmaron				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	13,543	10,379	3,164	23.4%
2011	10,806	8,301	2,505	23.2%
RAA	11,018	8,372	2,646	24.0%

- Hydro tank failure and repair resulting in significant water loss

08-040 King Street				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	115,312	91,995	23,317	20.2%
2011	89,824	68,712	21,112	23.5%
RAA	86,550	66,986	19,564	22.6%
2008	115,312	91,995	23,317	20.2%
2011	89,824	68,712	21,112	23.5%
RAA	86,550	66,986	9,564	22.6%

- 11 water main repairs completed
- Five lateral water line repairs completed
- Blow-off valve failure and repair completed

Valencia Water Company – Greater Buckeye Division

07-732 Sonoran Ridge				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	16,079	15,258	821	5.1%
2011	8,369	6,824	1,545	18.5%
RAA	8,736	8,162	574	6.6%

- Leaking control valves discovered and replaced

07-129 Sweetwater II				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	13,305	11,586	1,719	12.9%
2011	11,612	9,981	1,631	14.0%
RAA	11,503	10,056	1,447	12.6%

- Hydro tank leak and repair requiring tank to be drained
- Drained and replaced storage tank
- Three water main repairs completed

07-195 Sun Valley				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	48,210	39,057	9,153	19.0%
2011	43,166	38,737	4,429	10.3%
RAA	44,077	39,475	4,602	10.4%

- 12 Water main repairs completed
- Hydrant locks have been installed

Water Utility of Greater Tonopah

07-618 Buckeye Ranch				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	13,929	12,521	1,408	10.1%
2011	10,432	8,717	1,715	16.4%
RAA	10,409	8,748	1,661	16.0%

- 2" water main repair completed
- Evidence of water theft from hydrants

07-033 WPE 6				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	2,530	1,758	772	30.5%
2011	1,997	1,560	437	21.9%

RAA	2,028	1,615	413	20.4%
-----	-------	-------	-----	-------

07-617 Tufte				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	514	444	70	13.6%
2011	456	403	53	11.6%
RAA	439	386	53	12.1%

- Water main leak repair completed

07-037 Garden City				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	2,560	1,960	600	23.4%
2011	2,848	1,933	915	32.1%
RAA	2,528	1,878	650	25.7%

- Capped leaking service on abandoned property
- Installed fire hydrant meter at Fire Department to track water consumption
- Two water main repairs completed
- Three instances of water theft through by-passed lines discovered and rectified

07-082 Roseview				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	2,413	2,212	201	8.3%
2011	2,773	2,430	343	12.4%
RAA	2,772	2,510	262	9.5%

- Drained and installed new storage tank
- Repaired one main leak

WPE 1				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	499	342	157	31.5%

2011	600	255	345	57.5%
RAA	589	267	322	54.7%*

* Significant water loss occurred in this system from May-September 2011, resulting in water loss north of 70% for much of this timeframe. This issue was corrected by October 2011 and since that time water loss is at 18% over the past 8 months.

- Eight water main repairs

Valencia Water Company – Town Division

07-078 Town Division				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	691,866	635,251	56,615	8.2%
2011	751,697	653,825	97,872	13.0%
RAA	771,761	676,427	95,334	12.4%

- 17 water main repairs completed
- Drained storage tank for new valve and header installation (Sonoran Vista)
- Drained storage tank for maintenance (Baseline Tank)

11-131 Santa Cruz**				
Year	Pumped (1000s)	Billed (1000s)	Gallons Lost (1000s)	% Loss
2008	1,749,993	1,701,471	48,522	2.8%
2011	2,145,553	1,932,632	212,921	9.9%
RAA	2,190,085	2,053,445	136,640	6.2%

** 2008 water loss included only potable water distributed from the Rancho El Dorado Water Distribution Center. 2011 and 12 Month Avg includes all water pumped and sold.

Despite the efforts of the Water Loss Task Force, water loss continues to be at or greater than 10 percent in most of the PWS listed above.

Q. Why is water loss higher than 10 percent for these systems?

A. Several reasons exist for water loss greater than 10 percent in these systems. First, the age of the infrastructure has resulted in numerous line breaks resulting in significant water loss.

1 Due to the isolated nature of the water systems in Tonopah and Buckeye, a leak may go
2 unreported or undiscovered for an extended period of time. Due to the rural systems
3 having fewer customers, they naturally distribute smaller quantities of water, and therefore
4 a leak can have a greater impact on the overall loss of water in the system than in a larger
5 system.

6
7 Likewise, theft can have a significant impact on water loss in the smaller systems. Despite
8 continued efforts to combat water theft, there continues to be instances in which meters are
9 by-passed and residents illegally tap into Global's water systems.

10
11 Global Water does track all utility used water (authorized usage) such as backwashing and
12 hydrant flushing, including estimated loss due to line breaks, leaks, and other sources of
13 loss. Where metered as routine operational activities these figures are accounted for in the
14 water loss figures. Where ever it is an undeterminable or insignificant volume of water, it
15 has not been included in the values above, however; this information is tracked and can be
16 made available if necessary.

17
18 And finally, as we have explained to the Commission in the context of why Global's use of
19 ICFA fees was in the public interest – the West Maricopa Combine system was, to use a
20 non-technical phrase, a complete mess when we bought it. That's why developers gave us
21 millions of dollars just to help us buy it, that's why ADWR and ADEQ took the
22 unprecedented step of writing to the Commission to explain how vital it is for Global to
23 serve that area, and why we continue to try to explain to the Commission that we used
24 ICFA money to buy systems that were not purchasable by any other means.

25
26 We continue to invest millions of dollars into fixing these systems, and preparing the
27 Lower Hassayampa Sub-basin for Total Water Management – to ensure that one of the

1 most over-allocated regions of the state can actually develop and provide homes and jobs
2 to Arizonans. The water loss data above drives home once again the public interest of our
3 purchase of the WMC assets.
4

5 **Q. What are some considerations that should be made with respect to water loss?**

6 **A.** Unaccounted for water rarely results in visible water at the surface (as these would be
7 repaired immediately) and is typically low flow, continuous gasket leakage that occurs
8 over time. As a result, typically water loss is a direct function of the number of joints
9 (gaskets) in the distribution system. While many of the West Valley Region systems serve
10 small numbers of customers, they have very lengthy distribution systems. As a result, one
11 can expect that the water loss in these systems will be disproportionate to the volume
12 pumped. This will skew the percentages.
13

14 **F. Future actions to mitigate water loss.**

15 **Q. What future actions have been planned to manage water loss?**

16 **A.** Global is moving forward with additional meter audits on the next tier of highest
17 consumption meters within the distribution system. Meter audits will occur continually
18 with the frequency based on the criticality of the meter in terms of potential water loss and
19 according to regulatory requirements such as our pending BMP tariffs.
20

21 Additionally, operations personnel will continue to observe the distribution network by
22 walking the distribution lines to confirm the lines are operable and without leaks. This will
23 also continue to be the greatest source of theft prevention.
24

25 Global Water will continue to advance the use of technology to operate its utilities and
26 continue to advance the FATHOM Read Management program that will greatly increase
27 water loss detection efforts through the full utilization of the AMI data and technology.

1 Read Management will use a series of algorithms to analyze AMI data to actively monitor
2 meters that have active low usage which could be an indication of a water leak. Additional
3 algorithms will detect meters that never register zero flow, which is indicative of a leak.
4 Each of these notices will automatically generate an immediate field investigation so that a
5 technician can eliminate any metering system errors and ultimately drive down water loss.

6
7 Lastly, Global Water may choose to employ leak detection, but this would require the
8 procurement of the necessary equipment or professional services. As leak detection
9 ultimately becomes necessary to reduce water loss, Global will complete individual cost-
10 benefit analyses for each PWS.

11
12 **X. Rate Design .**

13 **Q. Please describe Global's proposed rate design in this case.**

14 **A.** We propose to keep in place our innovative "Rebate Threshold Rate" design that was
15 approved by Decision No. 71878 (September 15, 2010), and to expand this design to our
16 Water Utility of North Scottsdale as well. In review, this rate structure incorporates the
17 following elements:

- 18
19 1. A volumetric rebate,
20 2. Six volumetric rate tiers instead of three, and
21 3. Revenue decoupling via increased basic monthly service charge.

22 **Q. Are you proposing any significant changes to the rate design?**

23 **A.** The rate design will not have any material change with respect to the major structural
24 elements, as we have kept the 6 tier system with the same volumetric break overs, and we
25 keep in place the volumetric rebate. We do however propose minor adjustments to the
26 parameters associated with the rebate volume threshold, the percent of the rebate, and the
27 basic monthly minimum charge.

1 **Q. Please explain these changes.**

2 **A.** The changes proposed are in response to the notable success of our many conservation
3 practices including this rate design itself, which have resulted in a decline in the average
4 monthly usage per residential customer when comparing the period utilized to set the
5 previous rebate threshold. The demand destruction we have achieved was the stated
6 objective, but as we realize these lasting changes the rate design must be fine tuned to
7 continue to achieve our three core goals of revenue neutrality, equity and conservation.
8 Again, with this design and our proposed parameter adjustments, lower use results in lower
9 consumer costs while ensuring the utility's finances remain sound. Further, it places the
10 ultimate control of costs well within the management capabilities of the consumer.

11
12 I will explain the proposed changes in the following order: 1) rebate volume threshold; 2)
13 the percent of consumptive charges available for rebate; 3) adjustments to the basic
14 monthly minimum charge.

15 1) In Global's last rate case, the rebate threshold was set for each water utility, based
16 on 90% of the average residential customer's consumption for the period
17 November 2007 to October 2008. Currently, between 65% and 75% of customers
18 qualify for the rebate. Thus, the threshold should be reduced so that these
19 customers are further encouraged to reduce their usage. Clearly, any such change
20 must be in the form of another realistic step downwards, so we believe that using
21 the same 90% of average residential customer consumption target used in the last
22 case, but updated with average usage data for the period January 2011 to
23 December 2011, results in the proper rebate thresholds (RBT). Those thresholds,
24 and the changes from the previous thresholds, are shown in the following table.

Utility	Prior RBT* (gallons)	New RBT** (gallons)	Reduction %
Santa Cruz	7001	6050	14%
Valencia	6701	6050	10%
Greater Buckeye	9001	7930	12%

Greater Tonopah***	7401	7270	2%
Willow Valley	6401	4373	32%
North Scottsdale	N/A	13720	

* period November 2007 to October 2008

**period January 2010 to December 2011

***received a rate reduction in last rate case

- 2) The volumetric rebate allows for residential customers who achieve real, immediate reductions in water consumption to realize an immediate reduction in their volumetric charges. Any time a customer achieves a consumption level below that of the Rebate Threshold, that customer is entitled to receive a reduction in volumetric charges (commodity charges). In order to simplify the program for us and the customers, and still retain a powerful incentive, we have standardized all utilities at a 50% rebate on their volumetric charges. Previously, this rebate ranges between 45% - 65% dependent upon the utility.
- 3) Lastly, we have targeted a 55% monthly basic charge for all water utility rate designs (except for Willow Valley where we targeted 60%), up from the approved basic charges in the last rate case that calculated to a 50% monthly basic charge. Increasing the basic charge is a critical component in continuing to allow Global to achieve real and lasting demand destruction, while keeping our utilities financially healthy.

For Willow, our rate design generates 60% of the revenue from the monthly basic charge due to the unique demographics and low residential water usage that exists in the system. In Willow, there are mostly small mobile unit style communities, and there are only a few commercial or irrigation accounts. Additionally, a large percentage of the commercial revenue is attributable to one customer who has multiple accounts, that being the Fort Mohave Indian Tribe with whom Willow

1 has a contract to provide water to several of their properties through numerous
2 master meters. Because 86% of the revenue comes from residential meters with
3 relatively low usage, and only 12% from commercial (again, with most being the
4 Tribe), and only 2% for irrigation, there is not the opportunity to have the majority
5 of the rate increase incurred by those with usage in the highest tiers. So it must be
6 more heavily applied to the residential customers, and in the form of an increase to
7 the basic monthly charge, taking it to the 60% target.

8
9 **Q. Can people really be expected to benefit from the three parts of the Rebate Threshold**
10 **Rate design?**

11 A. Absolutely. Our records indicate that since the implementation of this program in August
12 of 2010, through April 2012, we have issued a total of \$1,350,985.57 in rebates.

13
14 *Additionally, many consumers in the area are already qualifying for the Rebate Threshold*
15 *today – even at the new threshold level, and so would receive the immediate benefit of the*
16 *rebate. And with the new threshold level, the average residential customer would begin*
17 *saving financially when they save another 670 gallons of water in a month.*

18
19 **Q. How easy is it for a customer to save 670 gallons?**

20 A. 670 gallons per month can be saved in many ways. It represents only 22 gallons per day.
21 This volume can be saved by reducing outside use 7 minutes per day. Or by a number of
22 other activities including⁸:

- 23
24 • Save up to 1,000 gallons per month: Turn off the water while brushing your teeth
25 and shaving.
26 • Save up to 250 gallons per month: Rinse fruit and veggies in a bowl of water
instead of under running water.

27 ⁸ http://www.chnep.org/MoreInfo/water_conservation_facts.htm, accessed 9 December 2008

- Save up to 1,000 gallons per month: Run your washing machine and dishwasher only when full.
- Repairing a dripping faucet can save up to 30 gallons per day.
- Fix a toilet leak and you can save as much as 100 gallons of water per day.
- Dripping showerheads can waste 75 to several hundred gallons of water a week, depending on the size of the drip.
- Save up to 1,000 gallons per month: Limit showers to five minutes and install water-efficient showerheads.

So there are numerous activities that the homeowner can implement that will save water. The idea behind the Rebate Threshold is that by setting the standard, and providing feedback on the attainment of that standard, the homeowner will take action to benefit financially. When people benefit financially they will be more motivated to conserve resources, and the environment can benefit through reduced water withdrawals.

Q. Will the RTR apply to Commercial and industrial customers as well as to residential customers?

A. The RTR is primarily designed as a residential modifier. The Rebate Threshold is determined on the basis of the average residential consumption. However, commercial and industrial accounts that also reduce their consumption below the Rebate Threshold would be eligible to receive the rebate.

Q. Please explain Santa Cruz's proposed rate structure.

A. Santa Cruz proposes the following rate structure⁹:

Base Rate:

Meter Size (inches)	Monthly Fee
5/8	\$34.00
¾	\$34.00
1	\$85.00
1 ½	\$170.00

⁹ Note that the process described here is similar across all utilities in this application.

2	\$272.00
3	\$544.00
4	\$850.00
6	\$1,700.00
8	\$2,720.00

Commodity Rates:

From	To	Cost per 1000 gallons
0	1000	\$1.35
1001	5000	\$2.45
5001	10000	\$3.50
10001	18000	\$4.75
18001	25000	\$5.75
25001	And greater	\$6.75

Rebate Threshold:

Monthly Usage < 6,050 gallons per month¹⁰ results in a 50% reduction in volumetric charges.

This rate structure is calibrated to achieve the revenue requirement of \$12,895,269 per year for the utility.

Q. Can you describe the method employed to determine these rates?

A. For each utility, we utilized the same method and computerized excel based model as we did in setting the rates in the last rate case. However, in another effort to simplify the rate values and in order to ensure we achieve our stated goals relative to the monthly basic charge and pushing more of the increase in consumptive revenue to the highest tiers, we manually modified the model outputs to smooth out the results while still hitting the revenue requirement calculated in the schedules.

¹⁰ This number is determined by taking all consumption by all residential accounts in the test year period, and calculating the arithmetic average of that data set, then multiplying that value by 90%. In Willow, due to the demographics and seasonal occupancy issues, we have also remove the "zero" consumption accounts.

1 **Q. In summary, can you describe the effects of the rate design as proposed?**

2 A. All of the water rates in this application use the same process for determination. The
3 particulars for each utility are shown below. The details of these rates are also shown in
4 the attached schedules to this application.

5
6 **Q. Are there any other key aspects to the rate design that need to be considered?**

7 A. Yes. As noted in Mr. Hill's testimony, Global has agreed to a rate phase-in to limit the
8 impact to our customers. The terms of the rate phase in are outlined in our MOU with the
9 City of Maricopa. The phase-in applies to Santa Cruz and Palo Verde. The phase-in is
10 relative to the median residential household in accordance with the following terms.

11 Accordingly, for the next ten (10) years from the effective date of this MOU,
12 in instances when a Utility Company's total required rate increase will result
13 in an increase to the median residential customer that is greater than (a) 5%
14 when CPI is less than 2%; or (b) CPI plus 3% when CPI is greater than 2%
15 (hereafter referred to as the "Annual Limit"), Global will request that the ACC
16 authorize the Utility Companies to phase-in the total required rate increase to
17 mitigate customer impacts by seeking no greater than the Annual Limit per
18 year increase to the median residential customer per utility. This approach
19 will defer the amount of the total required increase over the Annual Limit for
20 recovery in future years.

21 As such, Global stipulates to such a phase-in, with the explicit intent to recover the lost
22 revenue from the phase-in periods in future years as already agreed to by the City of
23 Maricopa.

24 **Q. Does this conclude your direct testimony?**

25 A. Yes.
26
27

Attachment

"1"



Experience:

10 years of professional experience
in Utility and Heavy Civil industry.

Education

B.S. Construction Management, with
an emphasis in Heavy Civil and a
minor in Business Administration,
2003 - School of Engineering,
Northern Arizona University

Organizations and Training

- 2007 to present - Water Environment Federation
- 2007 to present – WESTCAPS Strategic Committee
- 2008 to present - WESTMARC Board of Directors
- 2009 to present - WESTMARC Water & Energy Co-Chair
- 2010 to present – Buckeye Valley Chamber of Commerce Board of Directors
- 2010 to present – Pinal Partnerships Board of Directors
- 2011 to present - Gazelles' G200 Building Leaders Forum
- 2007 - Public Utilities & Waterworks Management Institute
- 2003 – American Institute of Constructors Professional Certification
- 2003 - OSHA Construction Safety and Health Certification

Mr. Fleming is General Manager of Global Water's Arizona Regulated Division, which consists of 14 regulated water, wastewater, and recycled water utilities. In this role, Mr. Fleming has primary responsibility for the performance, growth and strategic direction of the Division, and has ownership of all aspects of utility operations & maintenance, compliance, customer service, development services, engineering & construction, and regulatory affairs.

Mr. Fleming leads an elite team of 50+ professionals that deliver on the Regulated Division mission – to transform utilities into highly technical, efficient, and advanced water resource management systems. Global Water generates industry leading metrics within these utilities by developing people and processes that systematically optimize facilities, and by implementing advanced infrastructure and technological systems to improve resource conservation, service levels, and financial performance.

Prior to becoming General Manager, from December 2004 to May 2007 Mr. Fleming was employed as the Senior Project Manager for Global Water overseeing the deployment of all capital improvements within the Maricopa-Casa Grande Region. During this period, Global Water invested over \$160 million in the Region building integrated regional water, wastewater, and recycled water systems. Role responsibilities included aspects of long range planning, design conception, permit acquisition, contracting, material procurement, construction oversight, project delivery including commissioning and training, owner and regulatory approvals, and all accompanying financial budgeting and reporting.

Prior to Global Water, Mr. Fleming gained experience in the utility and heavy civil industries working as a Project Engineer and Project Manager for multiple general contractors, constructing \$36 million in infrastructure as described further in the attached listing.

The distinct experience and knowledge derived from having managed teams, relationships, and projects developing solutions on both the contractor and owner side of the utility industry has allowed Mr. Fleming to excel within Global Water as the company fulfills its mission to produce sector leading Utilities.



General Manager for Global Water Resources, West Valley Region (2007 – 2010), Arizona (2010 to present).

- Ensure overall compliant operations as primary objective for 17 public water systems and 5 integrated wastewater and recycled water providers.
- Deliver industry best financial performance on a consolidated +\$30MM income statement.
- Care for, and minimize asset life cycle costs on a \$300+MM balance sheet.
- Develop and implement an ongoing strategic plan, with associated budgeting and forecasting, financial reporting, capital improvement program, rate cases, etc.
- Direct supervision of utility department heads including the following Divisional Management Team; operations, special programs, environmental resources, engineering and construction, and development services.
- Direct management of other key business functions, including regulatory affairs, legal matters, and corporate reporting.
- Establishment and quality preservation of key relations; regulators, municipalities, industry partners, vendors, and customers.

Senior Project Manager for Global Water Resources, Maricopa, AZ (2004 – 2007). Provided owner representative/project management services for the deployment of regional utility infrastructure.

- **2 MGD Water Reclamation Facility expansion:** included the construction of a 9 MGD influent lift station, a 6 MGD head works with screw style auger and vortex grit separator, odor control systems, multi-train sequencing batch reactors (SBR), post equalization basin, additional tertiary cloth media filtration, and ultra violet disinfection system.
- **1 MGD Water Reclamation Facility:** full facility construction including headworks, SBRs, equalization and clearwell basins, pumping, process, and electrical/control systems.
- **3 Water Distribution Centers:** 1 expansion and 2 new builds, including the installation of 2 MG of ground water tank storage, 18 MG of booster station capacity, disinfection and electrical/control systems:
- **3 domestic water system production well sites:** selection and conversion of existing agricultural wells to domestic system wells, from the preliminary analysis via down hole sampling and inspection, through modification designs, and the above ground pumping, piping, electrical/control and facility improvements.
- **5 sanitary sewer lift stations:** full facility construction of special collecting structures, lift station wet wells, pumping, piping, electrical/control and facility improvements, including odor control systems.
- **Backbone pipeline network:** deployed 45+ miles of potable water mains, 30+ miles of waste water collection lines and force mains, and 40+ miles of recycled waterlines including 6 recycle water delivery structures at storage impoundments, with automated valving and controls.

Utility Engineer for FNF Construction, Inc. Gilbert, AZ (2004).

- **SR202L Santan Freeway Project:** included the construction of 4 miles of freeway including earthwork for sunken profile travel ways, retaining walls, overpass bridges, connecting roadways, and 6 lanes for vehicular traffic. Utility Engineer was responsible for the planning, scheduling, sourcing, and budgeting of all underground utilities (\$9.4MM) including a massive storm water collection system with two storm water extraction pump stations.

Project Engineer/Manager for MMC, Inc. Lake Havasu City and Gilbert, AZ (2002-2004).

- **26 MGD Biological Manganese Water Treatment Facility:** included the construction of an influent cascade aerator, multi-chamber filtration structure, backwash pump station, settling tanks, sludge handling system, ultraviolet disinfection, chlorine contact basin, clearwell, finished



water pump station, and control/solids/administration facilities. All process structures were cast-in-place concrete. Responsibilities included submittal review and approval, request for information, work packages, daily reports, record drawings, unit cost and labor tracking, etc.

- **Gilbert Road Improvement Project:** included widening 3 miles of a major arterial roadway from two lanes to four, including turn lanes, medians, and full curb/gutter/sidewalk. Project encompassed 2 major intersections requiring installation of traffic control street lights and decorative concrete placement. In conjunction with surface improvements, project required an expansion to the underground water and wastewater pipeline networks. Responsibilities included sub-contractor and in-house trade supervision, scheduling, pay applications, change orders, estimating, earned value management, cost accounting, and all day-to-day management activities.
- **Kiowa Avenue Widening:** included widening 2 miles of arterial roadway from two lanes of traffic to three (two travel ways plus one turn lane), including the widening of a storm drainage culvert, three intersections, and full curb/gutter/sidewalk. In conjunction with surface improvements, project required an expansion to the underground water and wastewater pipeline networks. Responsibilities included sub-contractor and in-house trade supervision, scheduling, pay applications, change orders, estimating, earned value management, cost accounting, and all day-to-day management activities.

Attachment

"2"

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
1	<p>West Maricopa Combine</p> <p>Administrative Compliance</p> <p>O&M Compliance</p> <p>Engineering & Technical Compliance</p> <p>Illegal installation of water services</p> <p>Relevant Representations:</p> <p>3.1.11(c) encroachment and trespass</p> <p>3.1.11(f) facilities in good working order, proper maintenance</p> <p>3.1.13 possession of and compliance with permits</p> <p>3.1.24 compliance with applicable law</p> <p>3A.1.5 accuracy of representations</p>	<p>With the knowledge of senior management, WMC employees were allowed to utilize company resources to conduct illegal installations of water mains without Arizona Corporation Commission (ACC) approval in accordance with AAC R14-2-402.C.1 or Maricopa County Environmental Services Department (MCESD) approval in accordance with Maricopa County Environmental Health Code, Chapter V, Water Supply, Section 1 Regulations 2 and 3. A group of employees participated in and profited from a number of fraudulent installations. Employees would utilize company labor, materials and equipment (both during working hours and on weekends) to construct water lines for individual homes or subdivisions. These installations were completed without proper regulatory approval – ATC, pressure tests, compaction tests, bacteriological tests etc. “Clients” would be invoiced under various names using the billing system at the Valencia Water Company office and payments were made directly to these individuals.</p> <p>A number of illegal installations have been discovered. These systems do not have adequate capacity to be employed as mains. They are poorly installed and are not locatable. Some installations run across private property and lack necessary easements. ARS section 13-1501 et seq. and Medical Laboratory Management vs. American Broadcasting Companies, 30 F. Supp. 2d 1182 (D. Ariz. 1998).</p>	<p>Cost of investigation to uncover circumstances surrounding illegal installations \$ 6,631</p> <p>Contingency for replacement of various systems to ensure proper installation \$ 792,000</p> <p>Contingency for address of permitting and regulatory issues \$ 20,000</p> <p>ESTIMATED COST \$ 818,631</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
2	<p>West Maricopa Combine</p> <p>Administrative Compliance</p> <p>Falsification of records</p> <p>Relevant Representations:</p> <p>3.1.3 inaccuracy in Financial Statements</p> <p>3.1.13 possession of and compliance with permits</p> <p>3.1.24 compliance with applicable law</p> <p>3A.1.5 accuracy of representations</p>	<p>Work orders and time sheets were routinely falsified by the company's operations superintendent to cover for staff who had not shown up for work for several days. The superintendent and his operators routinely falsified reports to indicate that certain water systems met the requirements of the SDWA. Falsification of records is grounds for suspension under AAC R18-5-109.B.5.</p>	<p>Cost of investigation to uncover circumstances surrounding falsification of records * Included in Item 1</p> <p>Contingency for corrective actions <u>\$ 50,000</u></p> <p>ESTIMATED COST \$ 50,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
3	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>Manipulation of water samples</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>On at least one occasion, sampling bottles had been filled with bottled water by the senior operator for the Willow Valley Water Company. Falsification of records violates federal law 18 U.S.C. [section] 1001, which provides that whoever, in any matter within the jurisdiction of the executive, legislative, or judicial branch of the Government of the United States, knowingly and willfully-</p> <p>(1) falsifies, conceals, or covers up by any trick, scheme, or device a material fact;</p> <p>(2) makes any materially false, fictitious, or fraudulent statement or representation; or</p> <p>(3) makes or uses any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry; shall be fined under this title or imprisoned not more than 5 years, or both.</p>	<p>Cost of investigation to uncover circumstances surrounding manipulation of water samples * Included in Item 1</p> <p>Contingency for corrective actions \$ 50,000</p> <p>ESTIMATED COST \$ 50,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
4	<p>West Maricopa Combine</p> <p>Administrative Compliance</p> <p>O&M Compliance</p> <p>Contractual Compliance</p> <p>General lack of care and attention paid to water systems</p> <p>Relevant Representations: 3.1.9(c) breach of contract</p> <p>3.1.11(f) facilities in good working order, proper maintenance</p> <p>3.1.13 possession of and compliance with permits</p> <p>3.1.24 compliance with applicable law</p> <p>3A.1.5 accuracy of representations</p>	<p>There existed a general lack of care and attention paid to the WMC systems, the result of which was infrastructure held together (literally) with wire, rocks jammed into motor starters, and live electrical cables run across the ground.</p> <p>Well and storage sites were in desperate need of maintenance and clean up. At the Buffer site, animals were being allowed to graze in the well site and chlorination system was not being maintained.</p> <p>Some of the systems were not meeting compliance standards and, when adjustments were made by Global to bring them into compliance, could not meet the contractual requirements for service.</p> <p>Since the acquisition, Global has been forced to expend unanticipated resources to address, not only the apparent deficiencies, but the damages and long term impact that these deficiencies have had on the systems. Cost include additional operators to keep the systems compliant, inspections, engineering, regulatory affairs to address blatant violations, public outreach, and human capital to replace incompetent operators originally employed by previous ownership.</p> <p>AAC R18-4-124 requires proper maintenance of systems to insure that they are in good working order.</p>	<p>COST TO ADDRESS ISSUE \$ 1,152,000</p> <p>Updated:</p> <p>Lower Buckeye WDC (618-06-004) \$ 2,879,000</p> <p>Bales Upgrades (618-06-006) \$ 478,000</p> <p>Sonoran Vista NE Wall (618-06-031) \$ 1,195,000</p> <p>Roseview Tank (630-11-001) \$ 44,000</p> <p>All chlorination projects:</p> <ul style="list-style-type: none"> • 630-07-007 \$ 119,000 • 634-08-003 \$ 32,000 • 618-07-001 \$ 88,000

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
5	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-129 Lake Cimarron</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform a public notice for TTHM/HAA5 per AAC R18-04-105 and missed monitoring as required by AAC R18-04-214(2) for 2005 and 2006.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
6	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-129 Lake Cimarron</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to complete annual CCR's as required by AAC R18-04-701 for 2005.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

**West Maricopa Combine
Individual Issue Summary Sheet**

Issue	Description	Background Information	Summary of Costs
7	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-034 HO (Unit 17)</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform a public notice for TTHM/HAA5 per AAC R18-04-105 and missed monitoring as required by AAC R18-04-214(2) for 2005 and 2006.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed -- actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
8	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-034 HO (Unit 17)</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to complete annual CCR's as required by AAC R18-04-701 for 2005.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
9	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-040 King</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform a public notice for a total coliform MCL violation per AAC R18-04-202 in September 2005 and failed to perform increased monitoring as required by AAC R18-04-214(2).</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
10	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-040 King</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform a public notice for a total coliform MCL violation per AAC R18-04-202 in October 2005 and failed to perform increased monitoring as required by AAC R18-04-214(2).</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
11	<p>Willow Valley Water Company</p> <p>Administrative Compliance</p> <p>PWS 08-040 King</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to monitor the correct amount of coliform samples according to population.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
12	Water Utility of Greater Buckeye Administrative Compliance PWS 07-732 Sonoran Ridge Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to respond to deficiency items identified in Sanitary Survey as required by AAC R18-04-118.	DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000 Updated: Confirmed – actual cost to correct is undetermined.

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
13	<p>Water Utility of Greater Buckeye</p> <p>Administrative Compliance</p> <p>PWS 07-195 Sun Valley Ranch</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to respond to deficiency items identified in Sanitary Survey as required by AAC R18-04-118.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
14	<p>Water Utility of Greater Buckeye</p> <p>Administrative Compliance</p> <p>PWS 07-114 Bulfer</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to respond to deficiency items identified in Sanitary Survey as required by AAC R18-04-118.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
15	<p>Water Utility of Greater Buckeye</p> <p>Administrative Compliance</p> <p>PWS 07-129 Sweetwater II</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to respond to deficiency items identified in Sanitary Survey as required by AAC R18-04-118.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated: Confirmed – actual cost to correct is undetermined</p>

**West Maricopa Combine
Individual Issue Summary Sheet**

Issue	Description	Background Information	Summary of Costs
16	<p>Water Utility of Greater Buckeye</p> <p>Administrative Compliance</p> <p>PWS 07-129 Sweetwater II</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform increased monitoring as required by AAC R18-04-214(2) following a positive coliform sample in September 2005.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
17	Water Utility of Greater Tonopah Administrative Compliance PWS 07-733 West Phoenix Estates #6 Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform public notice as required by AAC R18-04-214(2) for a missed coliform monitoring in November 2004.	DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000 Updated: Confirmed – actual cost to correct is undetermined.

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
18	<p>Water Utility of Greater Tonopah</p> <p>Administrative Compliance</p> <p>PWS 07-618 B&D</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to monitor for nitrate at entry point of distribution system.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

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Issue	Description	Background Information	Summary of Costs
19	Water Utility of Greater Tonopah Administrative Compliance PWS 07-030 Dixie Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to repeat monitoring as required by AAC R18-04-214(2) for coliform violation in November 2005.	DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000 Updated: Confirmed – actual cost to correct is undetermined.

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Issue	Description	Background Information	Summary of Costs
20	<p>Water Utility of Greater Tonopah</p> <p>Administrative Compliance</p> <p>PWS 07-030 Dixie</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After acquisition of the water company, internal review of water system records by Global Water revealed that previous ownership had failed to perform increased monitoring as required by AAC R18-04-214(2) following a coliform violation in May 2006.</p>	<p>DISTRIBUTION OF COST TO ADDRESS ISSUE \$ 25,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

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Issue	Description	Background Information	Summary of Costs
21	Willow Valley Water Company Administrative Compliance O&M Compliance Modifications existing to existing facilities Relevant Representations: 3.1.11(f) facilities in good working order, proper maintenance 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	Well and storage sites were in poor operating condition with major modifications made to the chlorination and treatment systems. Treatment facilities at the King Street and Cimarron distribution centers were depleted of a number of components, removed or modified during operations prior to the acquisition. To address the issue and ensure that the systems operate in a compliant manner, Water Works, Inc. has been contracted to diagnose the facilities and provide recommendation on how to correct the insufficiencies. Felix Construction will make the necessary repairs on a time and material basis.	Contingency for corrective actions <u>\$ 100,000</u> ESTIMATED COST \$ 100,000 Updated: WVWC Unit 17 well and Treatment System (622-07-003) \$ 1,526,000 WVWC Corrosion Control (622-11-001) \$ 539,000 WVWC Site ID 01AA King St. \$ 15,000 WVWC Site ID 02AA Cimarron \$ 67,000 WVWC Site ID 03AA Unit 17 \$ 14,000

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Issue	Description	Background Information	Summary of Costs
22	Water Utility of Greater Tonopah Administrative Compliance O&M Compliance Contractual Compliance CAPEX PWS 07-033 West Phoenix Estates #6 Relevant Representations: 3.1.9(c) breach of contract 3.1.11(f) facilities in good working order, proper maintenance 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	<p>The Water Distribution Center was improperly designed and operated. Treatment system for fluoride and arsenic was not operational per the O&M manual. System was delivering water periodically throughout the month with levels above the MCL for each contaminant. pH of water delivered was below 6 and, at times, as low as 5. Data was not being reported to Maricopa County Department of Environmental Services as required by the AOC.</p> <p>The system was not meeting compliance standards and, when adjustments were made by Global to bring it into compliance, could not meet the contractual requirements for service.</p>	<p>Contingency for corrective actions \$ <u>100,000</u></p> <p>ESTIMATED COST \$ 100,000</p> <p>Updated:</p> <p>Confirmed – Some issues corrected by the following projects:</p> <ul style="list-style-type: none">West Phoenix 6 Treatment Plant Upgrades (630-06-004) \$ 117,000Remainder of issues in 2012 cap ex plan, project planned at \$ 195,000

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Issue	Description	Background Information	Summary of Costs								
23	Valencia Water Company Engineering & Technical Compliance Lack of Easement at Northsight Subdivision Relevant Representations: 3.1.11(c) encroachment and trespass 3A.1.5 accuracy of representations	In March 2007, during installation of a septic tank in the Northsight subdivision (a county island located within the Valencia Water Company CC&N), the contractor exposed an 8" potable water line that crossed the lot. Subsequent research determined that roughly 750 LF of pipeline was installed on private property without easements. Pipeline will need to be removed and replaced. ARS section 13-1501 et. seq. and Medical Laboratory Management vs. American Broadcasting Companies, 30 F. Supp. 2d 1182 (D. Ariz. 1998).	<table><tr><td>Contingency for corrective actions</td><td>\$ 100,000</td></tr><tr><td>ESTIMATED COST</td><td>\$ 100,000</td></tr><tr><td>Updated:</td><td></td></tr><tr><td>Confirmed – actual cost Site ID 32AA Bulfer</td><td>\$ 5,940</td></tr></table>	Contingency for corrective actions	\$ 100,000	ESTIMATED COST	\$ 100,000	Updated:		Confirmed – actual cost Site ID 32AA Bulfer	\$ 5,940
Contingency for corrective actions	\$ 100,000										
ESTIMATED COST	\$ 100,000										
Updated:											
Confirmed – actual cost Site ID 32AA Bulfer	\$ 5,940										

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
24	<p>Valencia Water Company Administrative Compliance PWS 07-078 7th & Alarcon</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>Treatment system for arsenic was in poor performance. A final AOC was unachievable. An unauthorized water source was connected to the system, violating the interim AOC, Maricopa County Environmental Health Code, Chapter V, Water Supply, Section 1 Regulations 2 and 3, and AAC R18-5-507.A.</p>	<p>Contingency for corrective actions \$ 25,000</p> <p>ESTIMATED COST \$ 25,000</p> <p>Updated:</p> <p>Confirmed – issues corrected by the following projects:</p> <ul style="list-style-type: none"> Alarcon Arsenic Treatment (618-06-052) \$ 101,000 Site ID 01AA Alarcon \$ 14,000

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
25	<p>Valencia Water Company Engineering & Technical Compliance</p> <p>Lack of Poly-Wrap and Bedding on Existing Pipelines</p> <p>Relevant Representations: 3.1.11 good working order and condition 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>Global received notification in March 2007 of potential problems associated with VWC's Apache Road Pipeline, a project that was nearly complete at the time of acquisition. The problems were associated mainly with turnout locations and dip sections. As the pipeline was exposed to rectify these issues, Global discovered that it was neither poly-wrapped nor properly bedded with select material as required by the project's Approval to Construct ATC. Lack of poly-wrap exposes the pipeline to corrosion and bedding with native material presents potential problems. Both issues will impact the lifespan of the pipeline, possibly decreasing its longevity by on half. It is anticipated that other pipelines installed under the watch of the previous owner will have similar issues. Failure to install infrastructure in accordance with the approved plans and ATC is a violation of AAC R18-5-506.</p>	<p>Contingency to <u>mitigate issues</u> <u>\$ 1,000,000</u></p> <p>ESTIMATED COST \$ 1,000,000</p> <p>Updated:</p> <p>Confirmed – actual cost to correct is undetermined.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs								
26	<p>Willow Valley Water Company</p> <p>O&M Compliance</p> <p>Accumulation of Iron and Manganese in Distribution Pipelines</p> <p>Relevant Representations: 3.1.11 facilities in good working order, proper maintenance 3A.1.5 accuracy of representations</p>	<p>Distribution pipelines within Willow Valley Water Company have been impacted by neglect and a systematic lack of proper maintenance. Poor treatment facility design and operation failed to remove quantities of iron and manganese from the potable water system. An affective preventative flushing program was never implemented and those minerals accumulated over a number of years. Current deposits are so bad that cross sectional areas of the distribution system pipelines are greatly reduced and frictional losses are extreme.</p> <p>Operational costs are high, as is the potential of a system failure. Global is developing a replacement program that was unanticipated at the time of acquisition.</p>	<table><tr><td>Contingency to mitigate issues</td><td>\$ 1,000,000</td></tr><tr><td>ESTIMATED COST</td><td>\$ 1,000,000</td></tr><tr><td>Updated:</td><td></td></tr><tr><td>Confirmed – actual cost to correct is undetermined.</td><td></td></tr></table>	Contingency to mitigate issues	\$ 1,000,000	ESTIMATED COST	\$ 1,000,000	Updated:		Confirmed – actual cost to correct is undetermined.	
Contingency to mitigate issues	\$ 1,000,000										
ESTIMATED COST	\$ 1,000,000										
Updated:											
Confirmed – actual cost to correct is undetermined.											

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs								
27	West Maricopa Combine Administrative Compliance Contractual Compliance Installations Outside of CC&N Relevant Representations: 3.1.9(c) breach of contract 3.1.11 good working order and condition 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	Global's post-acquisition investigation revealed that WMC personnel were making installations outside of CC&N boundaries with at least the knowledge of, and likely tacit approval from senior management. Installation of service connections outside an approved CC&N is a violation AAC R14-2-402.C.1, and Maricopa County Environmental Health Code, Chapter V, Water Supply, Section 1 Regulations 2 and 3. An internal audit is being completed and total illegal connections are expected to be in the hundreds. In addition to exposing the WMC to numerous regulatory penalties, installations within certain systems impacted capacity and created a situation where service obligations were jeopardized.	<table><tr><td><u>Contingency</u></td><td>\$ 100,000</td></tr><tr><td>ESTIMATED COST</td><td>\$ 100,000</td></tr><tr><td>Updated:</td><td></td></tr><tr><td>Confirmed – actual cost to correct is undetermined.</td><td></td></tr></table>	<u>Contingency</u>	\$ 100,000	ESTIMATED COST	\$ 100,000	Updated:		Confirmed – actual cost to correct is undetermined.	
<u>Contingency</u>	\$ 100,000										
ESTIMATED COST	\$ 100,000										
Updated:											
Confirmed – actual cost to correct is undetermined.											

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
28	<p>Valencia Water Company</p> <p>Administrative Compliance Engineering & Technical Compliance</p> <p>Contractual Compliance</p> <p>CAPEX</p> <p>4th & Baseline Arsenic Treatment</p> <p>Projects 618-06-045 & 618-06-047</p> <p>In Construction</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>System required arsenic treatment to meet compliance mandates. Installation of the arsenic treatment system was contracted design-build to Layne Christensen but their proposal excluded site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment.</p> <p>Modifications to the water distribution center site were internally designed by Global Water engineering and were contracted to RDH Environmental Services for construction. The work is being completed in conjunction with the expansion of the water distribution center. RDH is coordinating with Layne Christensen on installation of the arsenic treatment equipment.</p> <p>Fluid Solutions provided design services for the expansion but RBF Consulting was contracted to provide Engineer of Record services for both projects at the site.</p>	<p>Bethke Engineering \$ 3,800</p> <p>MCESD \$ 2,450</p> <p>Hookers Crane Service \$ 384</p> <p>Layne Christensen \$ 248,553</p> <p>RBF Consulting \$ 10,000</p> <p>RDH Environmental Services \$ 14,156</p> <p>RDH Environmental Services (Completed as part of 618-06-047) \$ 75,685</p> <p><u>GWM @ 6%</u> <u>\$ 21,302</u></p> <p>SUBTOTAL \$ 376,330</p> <p><u>Contingency @ 5%</u> <u>\$ 18,816</u></p> <p>ESTIMATED COST \$ 395,146</p> <p>Updated:</p> <p>Confirmed – breakdown indicated is accurate for project 618-06-45 \$ 395,000</p> <p>Additionally, required project 618-06-047 \$ 949,000</p>

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Issue	Description	Background Information	Summary of Costs
29	Valencia Water Company Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX 4th & Central Arsenic Treatment Projects 618-06-044 & 618-06-046 In Construction Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Installation of the arsenic treatment system was contracted design-build to Layne Christensen but their proposal excluded site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment. Design modifications to the water distribution center site were contracted to Hydro Engineering Solutions and Garney Construction was awarded a contract for construction. The work is being completed in conjunction with the expansion of the water distribution center. Garney is coordinating with Layne Christensen on installation of the arsenic treatment equipment.	<p>Bethke Engineering \$ 5,929</p> <p>Garney Construction (part of 618-06-046) \$ 112,611</p> <p>Hydro Engineering (part of 618-06-046) \$ 7,263</p> <p>Layne Christensen \$ 218,366</p> <p><u>GWM @ 6%</u> <u>\$ 20,650</u></p> <p>SUBTOTAL \$ 364,819</p> <p><u>Contingency @ 5%</u> <u>\$ 18,241</u></p> <p>ESTIMATED COST \$ 383,060</p> <p>Updated:</p> <p>Confirmed – breakdown is low. actual projects to correct issues are:</p> <ul style="list-style-type: none"> • Project 618-06-044 \$ 265,000 • Project 618-06-046 \$ 1,156,000

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
30	Valencia Water Company Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Bales Arsenic Treatment Project 618-06-042 Substantially Complete Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Installation of the arsenic treatment system was contracted design-build to Layne Christensen but their proposal excluded site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment. Modifications to the water distribution center site were designed by Global Water engineering with electrical design contracted to DARcor & Associates. A contract was awarded to RDH Environmental Services for construction. RDH coordinated with Layne Christensen on installation of the arsenic treatment equipment.	<p>DARcor & Associates \$ 9,577</p> <p>Fluid Solutions \$ 574</p> <p>Kino Construction \$ 2,274</p> <p>Hookers Crane Service \$ 347</p> <p>Layne Christensen \$ 156,333</p> <p>RDH Environmental Services \$ 320,256</p> <p><u>GWM @ 6%</u> <u>\$ 29,375</u></p> <p>ESTIMATED COST \$ 518,952</p> <p>Updated:</p> <p>Confirmed – breakdown indicated is accurate for project 618-06-042 \$ 519,000</p>

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Issue	Description	Background Information	Summary of Costs
31	Valencia Water Company Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Blue Hills Arsenic Treatment Project 618-06-041 Substantially Complete Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Treatment equipment was installed by Layne Christensen within the new Blue Hills Water Distribution Center (WDC). The WDC was developer constructed (Kalish) with Fluid Solutions acting as the design/builder and Grimm Construction (later Prime Contracting) working as Fluid Solution's subcontractor. A majority of the key components were completed by Kalish including site work, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment. To accommodate the arsenic treatment equipment, a concrete pad was constructed by Valencia Water Company and Prime Contracting completed miscellaneous mechanical installations. In the summer of 2007, absorption media from the treatment system had to be shipped off site for regeneration on two different occasions. A change order was give to Layne Christensen for the first regeneration and a contract was awarded to Slaby Environmental for the second. It has been determined that the system was designed based on water quality criteria provided by ADT Drilling and Fluid Solutions. The criteria were incorrect, resulting in an undersized system that will require modification in the future.	Bethke Engineering \$ 1,129 Fluid Solutions \$ 5,486 Hookers Crane Service \$ 529 Layne Christensen \$ 271,664 Prime Contracting \$ 31,195 Slaby Environmental \$ 15,720 Weber Group \$ 840 <u>GWM @ 6%</u> \$ 19,594 ESTIMATED COST \$ 346,157 Updated: Confirmed – breakdown indicated is accurate for project 618-06-041 \$ 346,000

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Issue	Description	Background Information	Summary of Costs
32	Valencia Water Company Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Sonoran Vista Arsenic Treatment Project 618-06-039 Substantially Complete Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Installation of the treatment system was contracted design-build to Layne Christensen but their proposal excluded site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment. The excluded components were designed by Fluid Solutions (site work and piping), Shapton & Partners (concrete), and EIC Engineers (electrical). The additional work was contracted to Garney Construction. Garney coordinated with Layne Christensen on installation of the arsenic treatment equipment. Note that water quality assessments used as the basis of the Sonoran Vista WDC treatment system design were provided by Fluid Solutions and ADT Drilling. Assessments provided for the Blue Hills WDC project have proven to be incorrect and modifications will be required in the future.	<p>Broomhead Electric \$ 472</p> <p>EIC Engineers \$ 2,250</p> <p>Engineered Sales Company \$ 7,150</p> <p>Fluid Solutions \$ 9,950</p> <p>Garney \$ 278,733</p> <p>Layne Christensen \$ 1,137,490</p> <p>Shapton & Partners \$ 3,500</p> <p>Thomas Reprographics \$ 29</p> <p>United Rentals \$ 1,114</p> <p><u>GWM</u> <u>\$ 86,441</u></p> <p>ESTIMATED COST \$ 1,527,129</p> <p>Updated:</p> <p>Confirmed – breakdown indicated is accurate for project 618-06-039 \$ 1,527,000</p>

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Issue	Description	Background Information	Summary of Costs
33	<p>Valencia Water Company</p> <p>Administrative Compliance Engineering & Technical Compliance Contractual Compliance</p> <p>CAPEX Shut Arsenic Treatment</p> <p>Project 618-06-040</p> <p>Design/Permitting</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>After the closing of the SPA, Global discovered that the design of the Shut Water Distribution Center and associated arsenic treatment was completed prior to acquisition. The facility's design was based on numerous assumptions and lacked the standard of care typically utilized within the engineering profession. Design modifications will be required and costs to properly construct a compliant facility will be considerable.</p>	<p>ESTIMATED COST \$ 3,000,000</p> <p>Updated:</p> <p>Issue not addressed yet. It will be required in the future.</p>

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Issue	Description	Background Information	Summary of Costs
34	Water Utility of Greater Tonopah Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Sunshine Arsenic Treatment Projects 630-06-003 & 630-06-006 (SUP) In Construction Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Design and construction of the treatment facilities were awarded to Conestoga Rovers & Associates (CRA). Related components including site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment were designed and are being managed by McBride Engineering Services (MES) and constructed by CRA as part of their contract. Although Earl, Curley & Lagard did preliminary permitting work, MES also assisted in acquiring the necessary Special Use and Floodplain Use permits for the project.	Earl, Curley & Lagard \$ 1,844 Ferguson Enterprises \$ 1,756 Fluid Solutions \$ 680 MCESD \$ 3,525 Epic Sign \$ 424 McBride Engineering Services \$ 58,260 CRA \$ 240,104 Coke D Elms \$ 1,250 GWM @ 6% \$ 18,471 SUBTOTAL \$ 326,314 Contingency @ 5% \$ 16,316 ESTIMATED COST \$ 342,629 Updated: Confirmed – breakdown indicated is accurate for project 630-06-003 & 006 \$ 343,000

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Issue	Description	Background Information	Summary of Costs
35	Water Utility of Greater Tonopah Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Buckeye Ranch Arsenic Treatment Project 630-06-002 In Construction Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. Design and construction of the treatment facilities were awarded to Conestoga Rovers & Associates (CRA). Related components including site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment were designed and are being managed by McBride Engineering Services (MES) and constructed by CRA as part of their contract. Although Earl, Curley & Lagard did preliminary permitting work, MES also assisted in acquiring the necessary Special Use and Floodplain Use permits for the project.	Earl, Curley & Lagard \$ 16,210 MCESD \$ 2,000 Dynamite Signs \$ 1,880 McBride Engineering Services \$ 38,255 CRA \$ 267,962 GWM @ 6% \$ 19,578 SUBTOTAL \$ 345,885 Contingency @ 5% \$ 17,294 ESTIMATED COST \$ 363,180 Updated: Confirmed – estimate was low. Actual project cost for 630-06-002 \$ 712,000

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Issue	Description	Background Information	Summary of Costs
36	<p>Water Utility of Greater Tonopah</p> <p>Administrative Compliance Engineering & Technical Compliance</p> <p>Contractual Compliance</p> <p>CAPEX</p> <p>Rose View Arsenic Treatment</p> <p>Project 630-06-001</p> <p>Design/Permitting</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>System required arsenic treatment to meet compliance mandates. The situation was evaluated by McBride Engineering Solutions and it was determined that, based on the number of customers, Point of Use treatment would be utilized. Point of Use systems have been contracted to Watts.</p>	<p>Contingency to bring system into compliance \$ 32,000</p> <p>ESTIMATED COST \$ 32,000</p> <p>Updated:</p> <p>Confirmed – estimate was high. Actual project cost for 630-06-001 \$ 24,000</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
37	Water Utility of Greater Tonopah Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX West Phoenix Estates #1 Arsenic Treatment Project 630-07-001 Design/Permitting Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	System required arsenic treatment to meet compliance mandates. The situation was evaluated by McBride Engineering Solutions and it was determined that, base on the number of customers, Point of Use treatment would be utilized. Point of Use systems have been contracted to Watts.	Contingency to bring system into compliance \$ 15,000 ESTIMATED COST \$ 15,000 Updated: Confirmed – estimate was high. Actual project cost for 630-07-001 \$ 8,000

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Issue	Description	Background Information	Summary of Costs
38	<p>Water Utility of Greater Tonopah</p> <p>Administrative Compliance Engineering & Technical Compliance</p> <p>Contractual Compliance</p> <p>CAPEX</p> <p>West Phoenix Estates #7 / Tufte Arsenic Treatment</p> <p>Project 630-07-003</p> <p>Design/Permitting</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>System required arsenic treatment to meet compliance mandates. Further, the system routinely exceeded the Fluoride MCL. The situation was evaluated by McBride Engineering Solutions and it was determined that, base on the number of customers, Point of Use treatment would be utilized. Point of Use systems have been contracted to Watts.</p>	<p>Contingency to bring system into compliance \$ 20,000</p> <p>ESTIMATED COST \$ 20,000</p> <p>Updated:</p> <p>Confirmed estimate was high. Actual project cost for 630-07-003 \$ 11,000</p>

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Issue	Description	Background Information	Summary of Costs
39	Water Utility of Greater Buckeye Administrative Compliance Engineering & Technical Compliance Contractual Compliance CAPEX Sonoran Ridge Arsenic Treatment Project 634-06-001 In Construction	System required arsenic treatment to meet compliance mandates. Design and construction of the treatment facilities were awarded to Conestoga Rovers & Associates (CRA). Related components including site work, concrete construction, mechanical installations to connect the treatment system to the existing distribution facility, and electric modifications required to support the treatment equipment were designed and are being managed by McBride Engineering Services (MES) and constructed by CRA as part of their contract. Although Earl, Curley & Laggard did preliminary permitting work, MES also assisted in acquiring the necessary Special Use permit for the project.	Earl, Curley & Laggard \$ 3,411 MCESD \$ 2,000 McBride Engineering Services \$ 32,790 CRA \$ 266,962 GWM @ 6% \$ 18,310 SUBTOTAL \$ 323,473 Contingency @ 5% \$ 16,174 ESTIMATED COST \$ 339,646 Updated: Confirmed – estimate low. Actual project cost for 634-06-001 \$ 698,000
	Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations		

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Issue	Description	Background Information	Summary of Costs								
40	Water Utility of Greater Buckeye Contractual Compliance CAPEX PWS 07-195 Sun Valley Ranch Relevant Representations: 3.1.9(c) breach of contract 3.1.11(c) encroachment and trespass 3A.1.5 accuracy of representations	Service to Talas Home is predicated on the installation of utilities within an adjacent property. Installation is not scheduled prior to the Talas need and this oversight must be addressed by the utility.	<table><tr><td>Contingency for corrective actions</td><td>\$ 100,000</td></tr><tr><td>ESTIMATED COST</td><td>\$ 100,000</td></tr><tr><td>Update:</td><td></td></tr><tr><td>Confirmed – estimate was low. Actual project cost for 634-07-002</td><td>\$ 150,000</td></tr></table>	Contingency for corrective actions	\$ 100,000	ESTIMATED COST	\$ 100,000	Update:		Confirmed – estimate was low. Actual project cost for 634-07-002	\$ 150,000
Contingency for corrective actions	\$ 100,000										
ESTIMATED COST	\$ 100,000										
Update:											
Confirmed – estimate was low. Actual project cost for 634-07-002	\$ 150,000										

**West Maricopa Combine
Individual Issue Summary Sheet**

Issue	Description	Background Information	Summary of Costs
41	Valencia Water Company Engineering & Technical Compliance CAPEX 7 th & Alarcon Project 618-06-052 Relevant Representations: 3.1.11(f) facilities in good working order, proper maintenance 3A.1.5 accuracy of representations	Prior to the acquisition, arsenic treatment facilities had been installed by McPhee Environmental Supply at the water distribution center site. The facilities had been started up but the project lacked AOC. The McPhee system failed to produce the designed flowrates and pressures requiring various modifications during the summer of 2006 and again in the spring of 2007. Prior to the spring 2007 modifications it was determined that the media was exhausted and the system was subsequently taken off line. Media was removed, regenerated, and reinstalled in June 2007.	Aquacell Water Treatment \$ 23,998 <u>MCESD</u> <u>\$ 300</u> ESTIMATED COST \$ 24,298 Updated: Covered in item 24 above.

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
42	Valencia Water Company Engineering & Technical Compliance CAPEX Apache Road Pipeline Project 618-06-009	Project involved installation of roughly 10,000 lf of 16" transmission pipeline within the Apache Road alignment was installed through a contract with The Pipeline Company. Work was completed in conjunction with a sewer pipeline installation by the Town of Buckeye. Project was developer funded and Valencia Water Company was managing the work, paying the contractor, and billing for reimbursement from the developer. Project was completed in the summer of 2006.	Contingency for corrective actions ESTIMATED COST Updated: Confirmed – issues exist and some small costs were incurred, but not as indicated. Damages will be the reduced useful life of the pipeline due to lack of protective wrapping not installed. See engineering expert report in Fluid case.
	Relevant Representations: 3.1.1(c) encroachment and trespass 3A.1.5 accuracy of representations	Global received notification in March 2007 from Musser Engineering Consultants (representing Joseph Kalish) that a number of problems with the Apache Road Pipeline had been identified by the Crystal Vista development as they commenced with their infrastructure. Subsequent research identified that a number of "areas of concern" were brought to the attention of Valencia Water Company by the developer in May of 2005. According to Musser Engineering, Valencia Water Company (John Mihlik Sr., Norm Fain) communicated that, to avoid slowing the permitting process, the concerns would be addressed during construction and documented. It appears that this was never done. Twenty-three "areas of concern" were identified and will need to be addressed.	

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
43	Valencia Water Company Engineering & Technical Compliance CAPEX Miller Road / Lower Buckeye Road Pipeline Project 618-06-012 Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.11(c) encroachment and trespass 3A.1.5 accuracy of representations	<p>Project involved installation of approximately 2,770 lf of 16" transmission pipeline within the Miller Road alignment and roughly 5,000 lf along the Lower Buckeye Road Alignment was awarded to Blucor Contracting in April 2006 and was installed. Project was developer funded and Valencia Water Company was managing the work, paying the contractor, and billing for reimbursement from the developer.</p> <p>Project was completed during the summer of 2006. Global (John Mihlik, Sr.) received notification in October 2006 from RLH Development that the installation encroached upon roughly 12 lots in the Villages at Sundance development. Subsequent investigation revealed that the situation had been identified to Valencia Water Company/Fluid Solutions prior to commencement of construction but nothing was addressed. It appears that Fluid Solutions was aware of an easement issue in March 2006 yet made no effort to rectify the situation.</p> <p>Approximately 1,000 lf of the pipeline will have to be removed and relocated. This work will commence after the development's new sewer line is installed and an old sewer line abandoned. ARS section 13-1501 et. seq. (trespass) and Medical Laboratory Management vs. American Broadcasting Companies, 30 F. Supp. 2d 1182 (D. Ariz. 1998).</p>	<p>Contingency for corrective actions \$ 250,000</p> <p>ESTIMATED COST \$ 250,000</p> <p>Updated:</p> <p>Confirmed – however we have not had to deal with this yet as property remains undeveloped. So line has not been relocated yet. See engineering expert report in Fluid case where value was recalculated \$ 553,000</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
44	<p>Water Utility of Greater Tonopah</p> <p>Administrative Compliance Engineering & Technical Compliance</p> <p>CAPEX</p> <p>Buckeye Ranch WDC Expansion (Winters Well)</p> <p>Project 630-06-008</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>Project involved expansion of the existing Buckeye Ranch facility including additional storage and booster capacity to provide fire flow to the Winters Well School. As information was compiled by McBride Engineering Solutions for the Special Use Permit, it was determined that the facility is located within a flood plain. This fact was not detected or addressed during design by Fluid Systems. Efforts to address the flood plain issue hampered the project schedule. Locating facilities in a floodplain without adequate protection is a violation of AAC R18-5-501.</p>	<p>Contingency for <u>corrective actions</u> \$ 50,000</p> <p>ESTIMATED COST \$ 50,000</p> <p>Updated:</p> <p>Confirmed – resulted in an increase in the overall project cost. estimate is fine. \$ 50,000</p>

**West Maricopa Combine
Individual Issue Summary Sheet**

Issue	Description	Background Information	Summary of Costs
45	<p>Valencia Water Company Engineering & Technical Compliance</p> <p>Lack of Title at Lower Buckeye and Apache WDC</p> <p>Relevant Representations: 3.1.11(a) lack of clear title 3.1.11(c) encroachment and trespass 3A.1.5 accuracy of representations</p>	<p>The company did not obtain title to the property upon which the water distribution center is constructed. ARS section 13-1501 et. seq. (trespass) and Medical Laboratory Management vs. American Broadcasting Companies, 30 F. Supp. 2d 1182 (D. Ariz. 1998)</p>	<p>Contingency for corrective actions <u>\$ 10,000</u></p> <p>ESTIMATED COST \$ 10,000</p> <p>Updated:</p> <p>Confirmed – again hard to value as we have not had to correct yet. In reality, the landowner could require us to relocate constructed facilities at a cost of tens or hundreds of thousands.</p>

**West Maricopa Combine
Individual Issue Summary Sheet**

Issue	Description	Background Information	Summary of Costs
46	Willow Valley Water Company Administrative Compliance Engineering & Technical Compliance CAPEX Unit 17 Treatment Relevant Representations: 3.1.11(f) facilities in good working order, proper maintenance 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations	The Willow Valley system requires numerous improvements that were not disclosed by previous ownership. Iron and manganese are prevalent in the systems groundwater source. These constituents react with chlorine during the disinfection process impact the appearance (color) of the potable water supply. Rather than addressing removal of the constituents, operations elected to minimize disinfection of the water supply and manipulated sampling and reporting. Removal of iron and manganese is required, necessitating construction of a treatment facility at Unit 17. Design is being completed by ARQ Engineering, treatment equipment will be purchased from Pureflow and a construction contract will be awarded to Felix Construction.	ESTIMATED COST \$ 1,000,000 Updated: Covered in item number 21 above.

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs				
47	Valencia Water Company Engineering & Technical Compliance Well Sanding Issues Relevant Representations: 3A.1.5 accuracy of representations	Seventeen developer installed wells were drilled under the direction and supervision of Valencia Water Company. None of the wells were operational prior to acquisition but the Blue Hills well site was being equipped at the time. Operation of the Blue Hills well after the acquisition produced a sanding problem that necessitated additional infrastructure. Subsequent investigation revealed that the drilling process approved by Valencia Water Company contributed to the sanding issue and it is anticipated that the remaining, unequipped well sites will require previously unanticipated infrastructure to mediate similar issues.	<table><tr><td>Contingency for corrective actions</td><td>\$ 1,700,000</td></tr><tr><td>ESTIMATED COST</td><td>\$ 1,700,000</td></tr></table> <p>Updated:</p> <p>Confirmed – condition exists but we have only had to deal with it at a few sites thus far. See hydrologist expert report from Fluid case that identifies all the related issues, and supports the estimate if not more.</p> <p>\$ 1,700,000</p>	Contingency for corrective actions	\$ 1,700,000	ESTIMATED COST	\$ 1,700,000
Contingency for corrective actions	\$ 1,700,000						
ESTIMATED COST	\$ 1,700,000						

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
48	<p>Valencia Water Company Engineering & Technical Compliance</p> <p>Well Water Quality Issues</p> <p>Relevant Representations: 3.1.11(f) facilities in good working order, proper maintenance 3A.1.5 accuracy of representations</p>	<p>Seventeen developer installed wells were drilled under the direction and supervision of Valencia Water Company. None of the wells were operational prior to acquisition but the Blue Hills well site was being equipped at the time. Operation of the Blue Hills well after the acquisition produced water inconsistent with quality data represented by Valencia Water Company.</p> <p>Water quality issues may necessitate unanticipated treatment infrastructure at the centralized water distribution centers and could impact operations and maintenance. Subsequent investigation revealed that the water sampling processes utilized by Valencia Water Company lacked the standard of care typically utilized within the engineering profession.</p>	<p>Contingency for corrective actions \$ 4,000,000</p> <p>ESTIMATED COST \$ 4,000,000</p> <p>Updated:</p> <p>Confirmed – however, treatment requirements are covered in the other items listed and should not be duplicated here.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
49	<p>West Maricopa Combine (Water Utility of Greater Tonopah and Water Utility of Greater Buckeye)</p> <p>Administrative Compliance</p> <p>Contractual Compliance</p> <p>Storage Issues</p> <p>Relevant Representations: 3.1.9(c) breach of contract 3.1.11(f) facilities in good working order, proper maintenance 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>Global determined that water distribution centers at Dixie (WUGT) and at Sweetwater II (WUGB) both lacked sufficient storage to service existing customers. This violated regulatory requirements AAC R18-5-503.A and contractual obligations as the systems lacked capacity.</p>	<p>Contingency <u>\$ 100,000</u></p> <p>ESTIMATED COST \$ 100,000</p> <p>Update:</p> <p>Waiting on details.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs	
50	<p>West Maricopa Combine</p> <p>Contractual Compliance</p> <p>Unapproved Line Extension Agreements</p> <p>Relevant Representations: 3.1.4(b) unapproved line extension agreements 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>An ongoing Global audit has revealed that a number of connections were, and continue to be, served without approved line extension agreements (LXA's), a violation of AAC R14-2-406.M.</p>	<p>Contingency \$ 100,000</p> <p>ESTIMATED COST \$ 100,000</p> <p>Update:</p> <p>Waiting on details.</p>	

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
51	<p>Valencia Water Company</p> <p>Administrative Compliance</p> <p>Contractual Compliance</p> <p>Operation of Systems without Approval of Construction</p> <p>Relevant Representations:</p> <p>3.1.9(c) breach of contract</p> <p>3.1.11(f) facilities in good working order, proper maintenance</p> <p>3.1.13 possession of and compliance with permits</p> <p>3.1.24 compliance with applicable law</p> <p>3A.1.5 accuracy of representations</p>	<p>The facilities in service prior to the time of the acquisition were inadequate to meet the existing demand in Valencia, prompting prior ownership to make use of the Blue Hills and Bales Water Distribution Centers. It was determined subsequently by Global that both Blue Hills and Bales lacked the required Approval of Construction (AOC) necessary to legally operate the facility AAC R18-5-507.A and ARS 49-353.A.c. Global was forced to address the issue through regulatory agencies and accelerate mandated modifications to bring the site into compliance.</p> <p>Further, the system was incapable of meeting production requirements resulting in curtailment of construction water, the installation of temporary construction water facilities at Sonoran Vista – NE Well and significant damage to Global's reputation as a water provider.</p>	<p>Contingency \$ 100,000</p> <p>Installation and Operation Of Temporary Facilities \$ 167,432</p> <p>ESTIMATED COST \$ 267,432</p> <p>Update:</p> <p>Waiting on details.</p>

West Maricopa Combine Individual Issue Summary Sheet

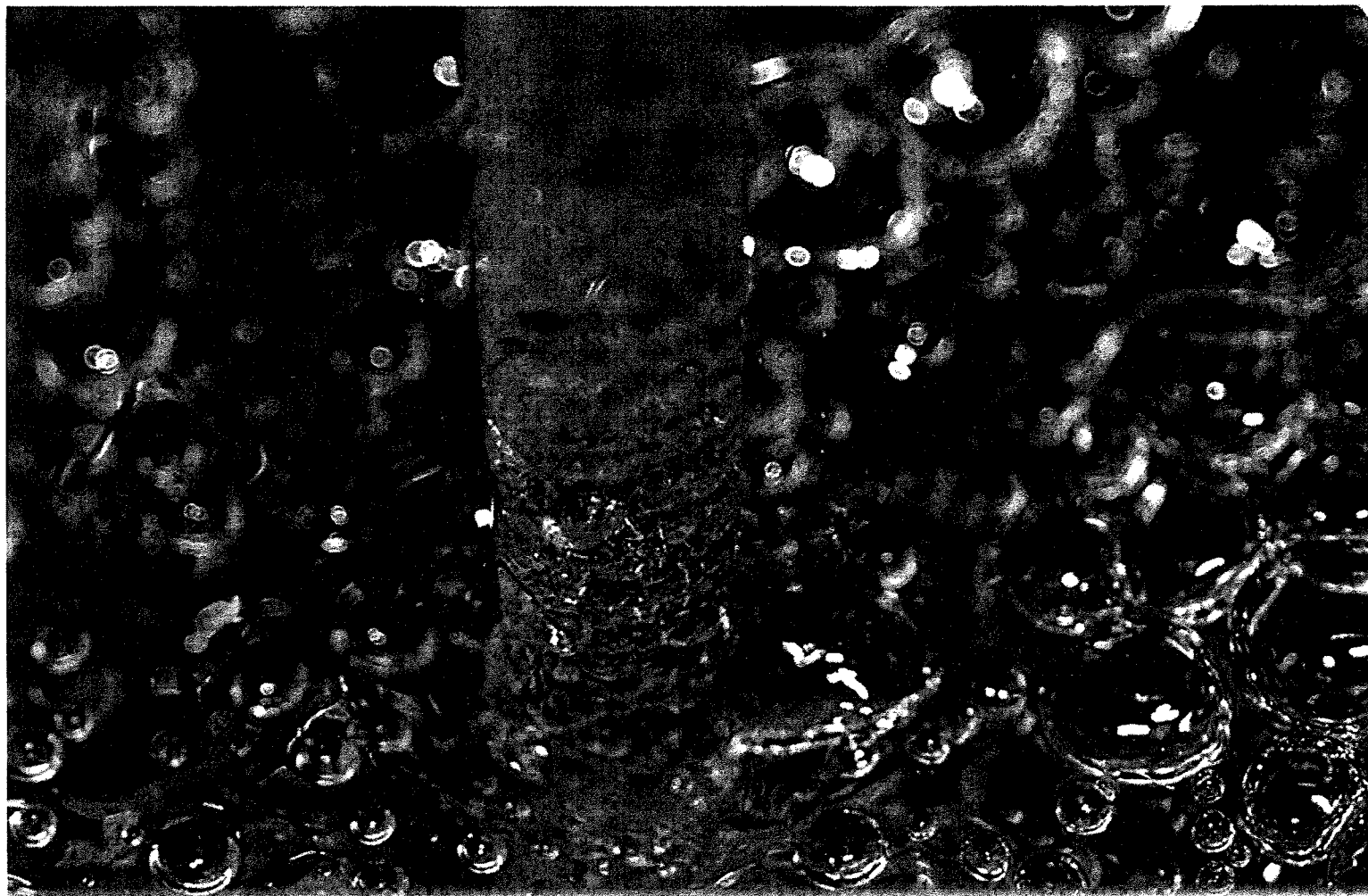
Issue	Description	Background Information	Summary of Costs
52	<p>West Maricopa Combine Contractual Compliance</p> <p>Undisclosed Contracts</p> <p>Relevant Representations: 3.1.9(a) undisclosed agreements 3A.1.5 accuracy of representations</p>	<p>During its tenure as the WMC Engineer, Fluid Solutions provided design and permitting services on a majority of the WMC infrastructure initiatives and served as the general contractor on a number of projects, a majority of which had no written contract in place. None of these projects executed by oral contract were listed in the SPA schedules.</p> <p>In the WMC Engineer capacity, Fluid Solutions approved their own designs and installations. This scenario created an environment where incomplete designs and poor quality assurance not only was prevalent but allowed Fluid Solutions to bill for additional costs to evaluate and correct their own errors and omissions. The process typically provided understated project budget information to developers for funding and incrementally added additional costs during construction. Invoicing for the work was submitted on an irregular basis and approved by senior management. Fluid Solutions had no accountability and produced substandard designs that have been, and continue to be, addressed during the construction process.</p> <p>In addition to the numerous Fluid Solutions contracts, WMC executed contracts with Layne Christensen for Arsenic removal systems that were signed in the days just prior to and after the execution of the SPA. These contracts were also excluded from any schedules.</p>	<p>Costs included with, but not limited to, values listed with Issues 28 through 39.</p> <p>Update:</p> <p>Waiting on details.</p>

West Maricopa Combine Individual Issue Summary Sheet

Issue	Description	Background Information	Summary of Costs
53	<p>West Maricopa Combine (Water Utility of Greater Tonopah and Water Utility of Greater Buckeye)</p> <p>Administrative Compliance Installation of 2" Distribution Pipelines</p> <p>Relevant Representations: 3.1.13 possession of and compliance with permits 3.1.24 compliance with applicable law 3A.1.5 accuracy of representations</p>	<p>Global has discovered that WMC routinely installed 2" diameter potable distribution lines within various systems. AAC R14-2-406.H.2 sets the minimum diameter at 6".</p> <p>The 2" lines were also installed without the required cover. AAC R14-2-407.F references ADEQ guidelines. The requirement is found in ADEQ Bulletin 10 which presents guidelines for the construction of water systems. Within Bulletin 10, page 7-4 references depth of pipe and states "in no case shall the depth of cover to the top of the pipe be less than 3 feet".</p>	<p>Contingency for corrective actions \$ 100,000</p> <p>ESTIMATED COST \$ 100,000</p> <p>Update: Waiting on details.</p>

Attachment

"3"



Willow Valley Water Company
Water System Master Plan &
Preliminary Engineering Report
February 2011



WIFA



GLOBAL WATER
RELIABLE • RENEWABLE • REUSABLE

Willow Valley Water Company
Water System Master Plan & Preliminary Engineering Report

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-

Willow Valley Water Company
Water System Master Plan & Preliminary Engineering Report

1.0 EXECUTIVE SUMMARY

Water quality and system degeneration have been significant concerns in the Willow Valley water system. The analysis performed herein will focus primarily on the physical condition of infrastructure, as well as water age and the associated high production of trihalomethanes (TTHMs) in the system.

This study will include the following main components:

1. **Existing Infrastructure Audit:** The existing water system infrastructure will be evaluated. Age and condition of existing infrastructure will be established
2. **Water System Modeling:** A model will be prepared of the water system in order to evaluate criticality of existing components, as well as evaluate water age and TTHM formation in the system.
3. **20-year Capital Improvement Plan:** Based on parameters such as age, condition, and criticality, a 20-year Capital improvement plan will be prepared to provide the replacement of the aging system components.

In conjunction with this study, an audit of the existing infrastructure was performed. It was determined that the water distribution centers are in reasonable condition, though some improvements to the treatment processes will be required due to water quality concerns. It was also determined that the condition of existing piping is poor, and replacement of the majority of the water system piping is required.

Water modeling of the system was also performed. The analysis included evaluation of water ages. Through the water system modeling, it was determined that water age is not a significant factor contributing to the high TTHM levels measured in the system. Further analysis of water quality and system processes indicated that the source water had high levels of total organic carbon (TOC), and that unusually high levels of chlorine were being dosed into the treatment process in order to oxidize the iron and manganese prior to filtration, as well as maintain an adequate residual in the system.

It was determined that the high TTHM levels were the result of direct oxidation of the high levels of TOC with sodium hypochlorite. It is recommended that an alternate oxidant be utilized up front to oxidize the TOC, iron, and manganese, and that sodium hypochlorite be added for residual only after treatment has taken place. Alternative oxidants such as chlorine dioxide, potassium permanganate, and ozone are already being evaluated in conjunction with a separate corrosion control study already under way by Global Water Resources.

A 20-year capital improvements plan was prepared to implement the required system improvements. This plan includes immediate process changes to bring TTHM, and copper levels into compliance, as well as valve replacement to ease the burden of isolating main breaks in the existing system. Strategically locating valve replacements within the system will allow the system to be more functional during the water mains replacement program period. The water mains replacement program will ultimately replace the aging infrastructure that currently experiences frequent line breaks.

Willow Valley Water Company
Water System Master Plan & Preliminary Engineering Report

2.0 INTRODUCTION

2.1 Project Location

Willow Valley is located in Mohave County, Arizona. The service area of the Willow Valley Water Company includes water services located within sections 21, 23, 27, and 35 of Township 18N Range 22W. The vicinity map below provides a graphical representation of the location of the service area of the Willow Valley Water Company.

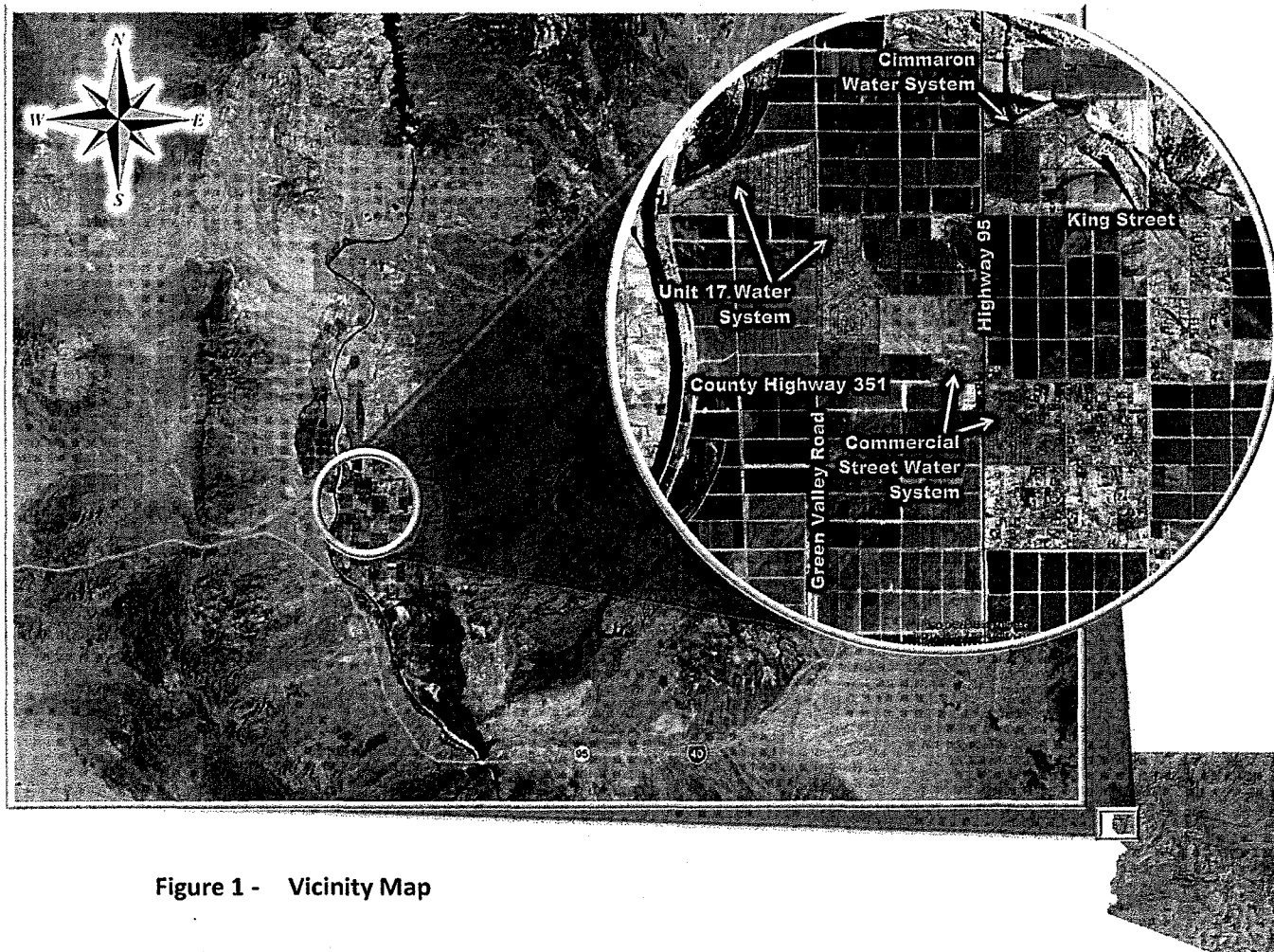


Figure 1 - Vicinity Map

2.2 Project Background

The service area of the Willow Valley Water Company is comprised of three water systems. These water systems are as follows:

1. Cimmaron Water System
2. Unit 17 Water System
3. Commercial Street Water System

These water systems are generally for residential use only, except that the Commercial Street Water System has approximately 23 service connections for commercial/industrial users. The Commercial Street Water system was originally constructed in the early 1960's, though a centralized water supply facility was constructed in the late 1990's that eliminated the need for two wells in the system that are still in place. However, the 2 wells are not used due to water quality concerns and inadequate equipping. The Commercial Street water system does not currently have an independent water supply, but is provided water from the Unit 17 water system through a 6-inch PVC transmission line installed in approximately 1998.

Development of the Unit 17 Water system also began in the early 1960's, and steadily increased into the early 1980's. Development of one small area at the eastern boundary of this area was begun in recent years, but was not completed, presumably due to economic conditions.

Development of the Cimmaron Water system was initiated in 1990. Development has occurred steadily in this area, with improvements as recent as 2007. This service area is built out based on existing planning, though additional capacity in the system exists for potential expansion in the future.

2.3 Project Scope

Water quality and system degeneration have been significant concerns in the Willow Valley water system. The analysis performed herein will focus primarily on the physical condition of infrastructure, as well as water age and the associated high production of trihalomethanes (TTHMs) in the system.

This study will include the following main components:

4. Existing Infrastructure Audit: The existing water system infrastructure will be evaluated. Age and condition of existing infrastructure will be established
5. Water System Modeling: A model will be prepared of the water system in order to evaluate criticality of existing components, as well as evaluate water age and TTHM formation in the system.
6. 20-year Capital Improvement Plan: Based on parameters such as age, condition, and criticality, a 20-year Capital improvement plan will be prepared to provide the replacement of the aging system components.

3.0 EXISTING WATER SYSTEM INFRASTRUCTURE AUDIT

3.1 Population

There are approximately 280 residential service connections in the Cimmaron Water System, 1,419 residential service connections in the Unit 17 Water System, and 137 residential service connections for the Commercial Street Water System. The Commercial Street Water System also has approximately 23 non-residential service connections.

3.2 Demand

Demands for residential users in the Cimmaron Water System are approximately 131.8 gpd per home. Demands for residential users in the Unit 17 and Commercial water systems are approximately 186.8 gpd. Demands for the commercial users are approximately 554.2 gpd per meter. These demands are lower than the typical values for water consumption due to perceived water quality issues in the system. These demands also include the water losses. As infrastructure is replaced, demands may become less due to a reduction in water loss in the system.

3.3 Service Area

Though the service area for the Willow Valley Water Company is spread out over an area approximately 9 square miles, the elevation only varies from 467 ft amsl to 491 ft amsl, a difference of 24 feet. The service area is comprised primarily of residential users, though there is a small area of commercial/industrial development that is also included.

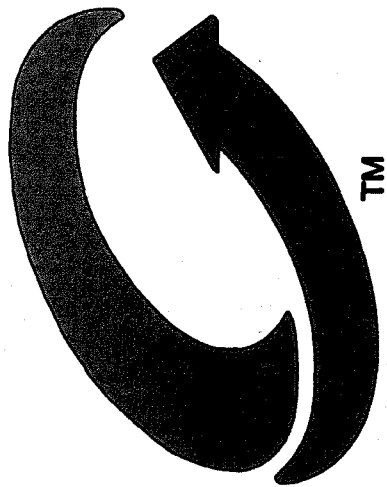
3.4 Unit 17 Water System Assets

The water system is comprised of the following water system assets:

1. Two (2) Water Distribution Centers (WDCs)
2. Four (4) Wells
3. Two (2) Treatment Systems
4. Two (2) Potable Water Storage Reservoir
5. Six (6) Distribution Pumps
6. Two (2) Hydropneumatic Tanks
7. Distribution Waterlines

Figure 2 below provides a graphical representation of the water system infrastructure.

WILLOW V WATER CC FIGURE 2- WATER SY



TM

CO. HWY. 347

GREEN VALLEY ROAD

KINGSLEY ST.

KINGSLEY WDC

UNIT 17 WDC

Willow Valley Water Company
Water System Master Plan & Preliminary Engineering Report

3.4.1 Water Distribution Centers

There are currently two (2) WDCs. The Kingsley Street WDC is located in the northwestern portion of the Unit 17 system at the intersection of Kingsley Street and Clearview Drive. The Green Valley Road WDC is located along Green Valley Road approximately ¼ of a mile south of King Street. The Green Valley Road is the primary water source for the system, with the Kingsley Street WDC operating as a redundant supply.

3.4.2 Wells

There are currently a total of four (4) wells in the Unit 17 Water System. However, two of these wells are not currently in use. One of the existing wells is located at the Kingsley Road WDC, and the other is at the Green Valley Road WDC. The Green Valley Road Well is a 6-inch, 30 hp Goulds submersible pump with a design capacity of 500 gpm. The Kingsley Road Well is a 15-hp Simmons submersible pump with a design capacity of 500 gpm. The size of the Kingsley Road Well pump is not known.

3.4.3 Treatment Systems

The source water from the wells is high in total organic carbon (TOC), iron and manganese. There are currently two (2) water treatment systems in the Unit 17 area. One is located at each WDC, and is plumbed to receive raw water directly from the well, and discharge into the onsite potable storage reservoir. The treatment systems are Pureflow iron and manganese treatment systems. Under current operation, raw well water is dosed heavily with chlorine to oxidize the iron, and then the water is filtered by a sand filter with a proprietary sand media and discharged into the reservoir. Adequate chlorine is dosed upfront of the treatment system to maintain chlorine residual in the water system.

3.4.4 Potable Storage Reservoirs

The Green Valley Road reservoir is 34 feet in diameter and 24 feet tall. The volume of the reservoir is approximately 163,000 gallons. The Kingsley Road Reservoir is located off site at a separate storage facility northwest of the Kingsley Road WDC. The offsite reservoir is 32 feet in diameter and 16 feet tall. The volume of the Kingsley Road reservoir is approximately 96,000 gallons.

3.4.5 Distribution and Fire Pumps

The Green Valley Road WDC includes three pumps. There are two 15 hp distribution pumps and a 40 hp fire pump. The pumps are all Goulds end suction centrifugal pumps. Catalogue pump curves were obtained from Goulds for the purposes of modeling.

The Kingsley WDC also includes three pumps. There are two 15 hp distribution pumps and a 30 hp fire pump. The 15 hp pumps are Goulds end suction pumps, but the fire pump is a Berkley close coupled centrifugal pump.

3.4.6 Hydropneumatic Tanks

At each WDC site there is a pressure tank the floats on the system as surge protection, and to prevent frequent cycling of the pumps. The Green Valley Road hydropneumatic tank is 72" in diameter, and 24'-8" in length. The tank has a storage volume of 5,216 gallons. The Kingsley Road hydropneumatic tank is 60" in diameter and 15' in length. The tank has a storage volume of 2,202 gallons.

3.4.7 Distribution Waterlines

The distribution water lines vary from 3" to 8" in diameter, and include pipe materials of ductile iron, PVC, and asbestos. In general, the oldest water lines in the system are 4-inch PVC and asbestos. The newer pipes (Newer than 1970) have a minimum diameter of 6-inches and are PVC. The majority of the system is comprised of pipes older than 40 years. Field evaluation of the system by the operations staff has revealed that approximately 90% of valves are not operable. The inoperable valves are primarily located within the older pipe network.

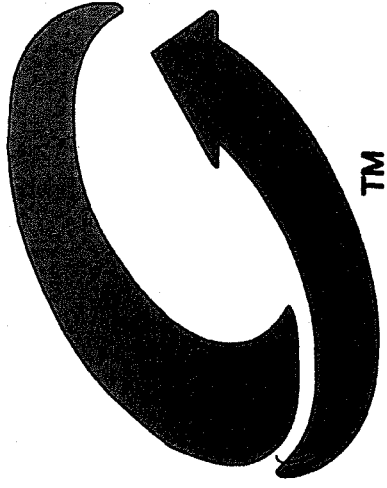
3.5 Commercial Street Water System Assets

The water system is comprised of the following water system assets:

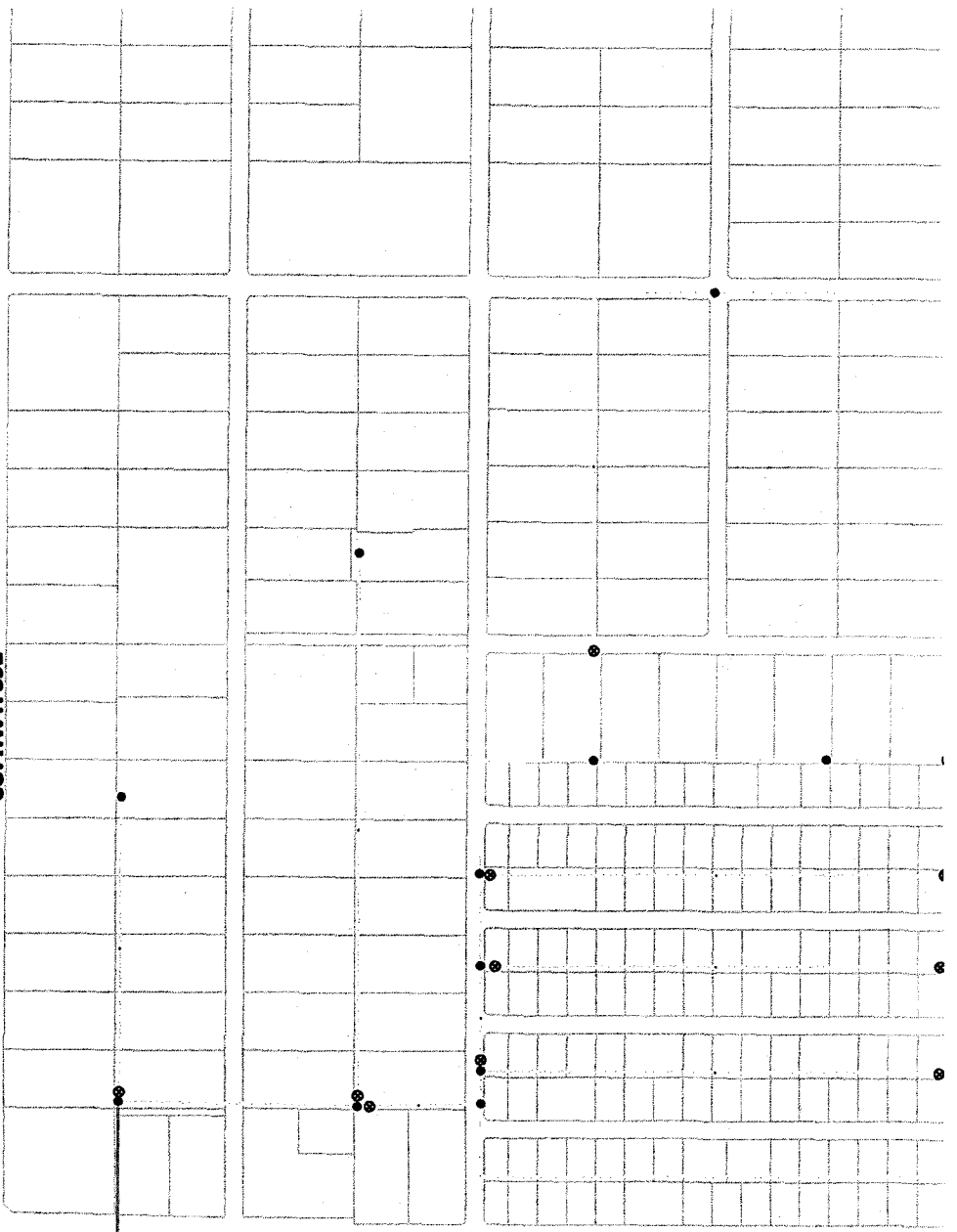
1. One(1) Water Distribution Center (WDC)
2. Three (3) Wells
3. One (1) Potable Water Storage Reservoir
4. Two (2) Distribution Pumps
5. One (1) Hydropneumatic Tanks
6. Distribution Waterlines

Figure 3 below provides a graphical representation of the water system infrastructure.

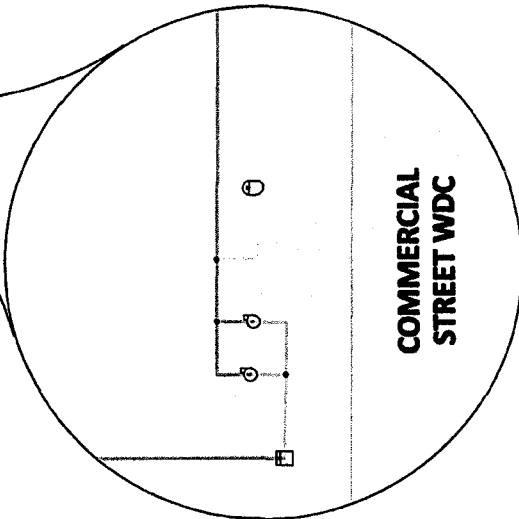
WILLOW VALLEY V COMPANY FIGURE 3 - COMM STREET WATER SY



CO. HWY. 351



1-95



COMMERCIAL
STREET WDC

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2.0	
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3.5.1 Water Distribution Centers

There is currently one water distribution facility serving the Commercial Street system. The facility is located at approximately Commercial Street and Highway 95. This facility is provided water from the Unit 17 system.

3.5.2 Wells

There are currently a total of three (3) wells located within the Commercial Street System. However, due to water quality concerns. None of the wells are currently in use.

3.5.3 Potable Storage Reservoirs

A single 47,000-gallon storage reservoir is included in the Commercial Street facility the reservoir is filled off of a 6-inch transmission line extending from the Unit 17 system. The reservoir fills off of system pressure and feeds the distribution pumps for the Commercial Street system.

3.5.4 Distribution Pumps

Water distribution within the Commercial Street system is provided by two (2) 15-hp centrifugal pumps. These pumps draw water from the storage reservoir and discharge from the site into an 8-inch distribution line in Highway 95. This distribution line extends to the north to serve commercial users, and south to a residential development.

3.5.5 Hydropneumatic Tanks

A hydropneumatic tank at the Commercial Street facility regulates the pressure at the discharge of the distribution pumps. The tank is approximately 2,200 gallons.

3.5.6 Distribution Waterlines

The distribution water lines vary from 4" to 8" in diameter, and include pipe materials of ductile iron, PVC, and asbestos. In general, the oldest water lines in the system are 4-inch PVC and asbestos. The majority of the system is comprised of pipes older than 40 years. Field evaluation of the system by the operations staff has revealed that approximately 90% of the valves are not operable.

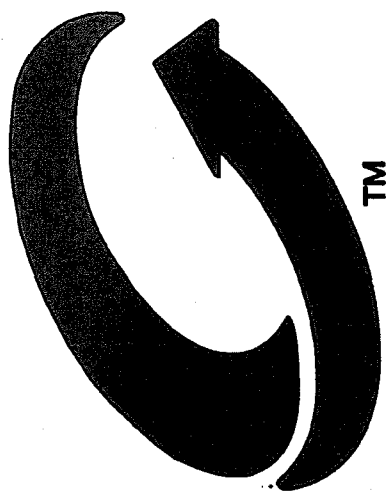
3.6 Cimmaron Water System Assets

The water system is comprised of the following water system assets:

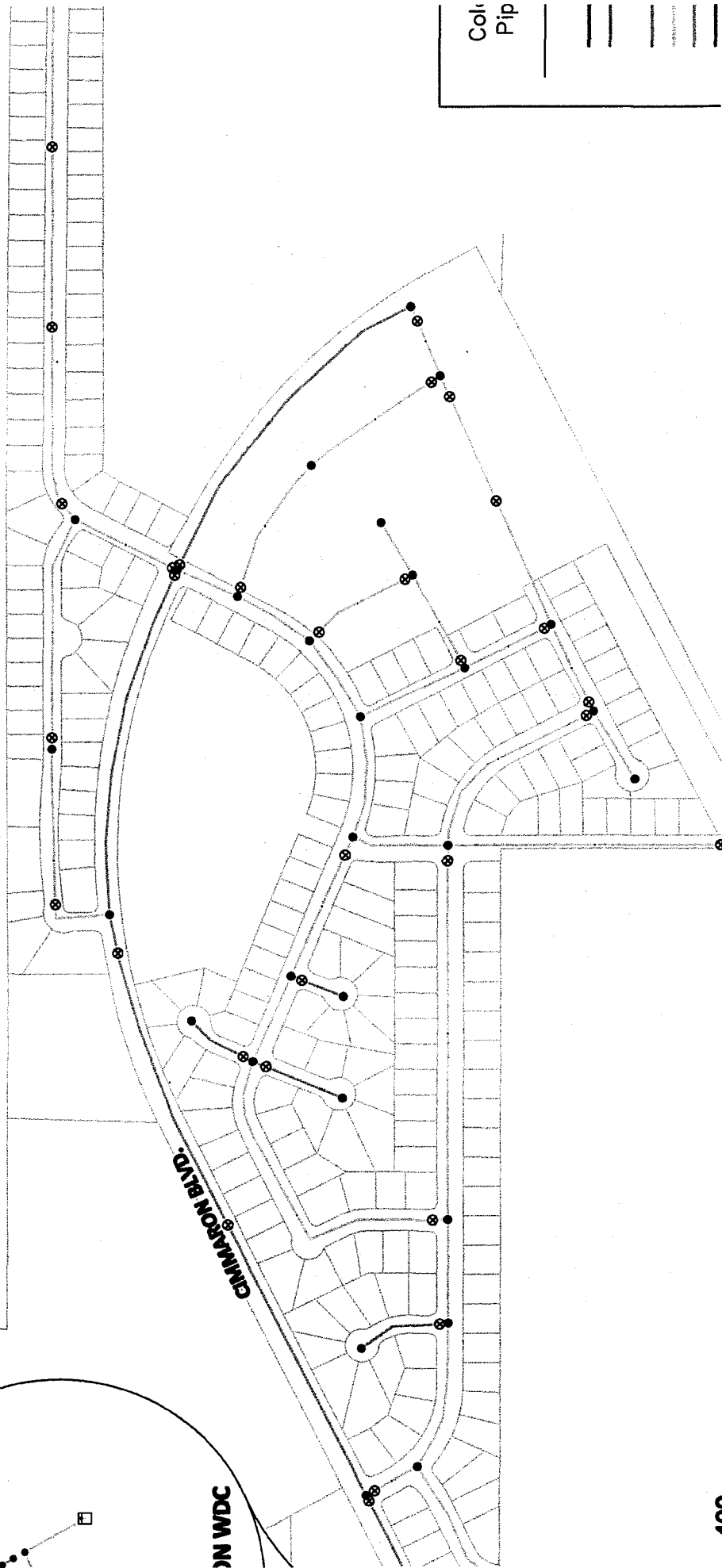
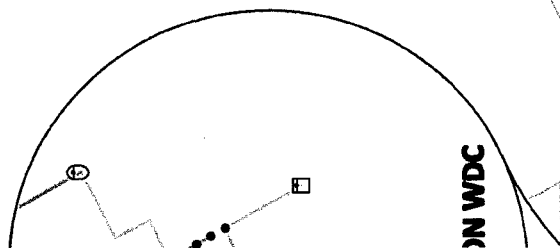
1. One (1) Water Distribution Center (WDC)
2. Two (2) Wells
3. One (1) Treatment System
4. One (1) Potable Water Storage Reservoir
5. Four (4) Distribution Pumps
6. One (1) Hydropneumatic Tank
7. Distribution Waterlines

Figure 4 below provides a graphical representation of the water system infrastructure.

WILLOW VALLEY WATER COMPANY FIGURE 4 - CIMMARON WATER SYSTEM MAP



TM



3.6.1 Water Distribution Center

There is currently one (1) WDC for the Cimmaron Service Area. It is located along Cimmaron Boulevard to the east of Highway 95 (Mohave Valley Highway). The WDC includes one of the wells, the treatment system, storage reservoir, distribution pumps and hydropneumatic tank.

3.6.2 Wells

There are currently a total of two (2) wells in the Cimmaron service area. These wells are referred to as the little well and the big well based on casing diameters (6" and 16", respectively). The big well is located within the WDC, and is the primary water supply for the system. The little well is located across Cimmaron Boulevard from the WDC, and serves only as a backup water supply. Each of the wells has a design capacity of 300 gpm.

3.6.3 Treatment Systems

The source water from the wells is high in total organic carbon (TOC), iron and manganese. There is currently one (1) water treatment systems in the Cimmaron area. The treatment system is configured to receive water from both the little and big well. The treatment system is a Pureflow iron and manganese treatment system. Under current operation, raw well water is dosed heavily with chlorine to oxidize the iron and manganese, and then the water is filtered by a sand filter with a proprietary sand media and discharged into the reservoir. Adequate chlorine is dosed upfront of the treatment system to maintain chlorine residual in the water system.

3.6.4 Potable Storage Reservoirs

The Cimmaron reservoir is located at the WDC and is 45 feet in diameter and 16.5 feet tall. The volume of the reservoir is approximately 196,000 gallons. While the reservoir is 16.5 feet tall, current operations maintain the water levels at levels of 3.3 to 5 feet in order to prevent high water ages.

3.6.5 Distribution and Fire Pumps

The Cimmaron WDC includes four (4) distribution pumps. There are two 20 hp distribution pumps and two 25 hp fire pumps. The pumps are all Peerless end suction centrifugal pumps. Catalogue pump curves were obtained from Peerless for the purposes of modeling.

3.6.6 Hydropneumatic Tanks

At the WDC site there is a pressure tank that floats on the system as surge protection, and to prevent frequent cycling of the pumps. The Cimmaron hydropneumatic tank is 74" in diameter, and 26' in length. The tank has a storage volume of 5,814 gallons.

3.6.7 Distribution Waterlines

The distribution water lines vary from 6" to 10" in diameter, and are all PVC. In general, the oldest water lines in the system are 4-inch PVC and asbestos. The majority of the system, including the wells and WDC were installed between 1990 and 1996. Two small developments to the north of Cimmaron Boulevard were added to the system from 2004 to 2007.

3.7 Water Usage Audit

When estimating water losses, it is important to understand that the Commercial Street water supply facility is filled with water from the Unit 17 water system. Therefore, for the sake of comparing usage and production, the Commercial Street usage will be combined with the Unit 17 usage.

Water production data was obtained for the wells for 2010. From December 9, 2009 to October 1, 2010, production volumes of 89.8 MG and 10.9 MG were produced by the Unit 17 wells and the Cimmaron wells, respectively. This results in average water production of 303,000 gpd and 36,900 gpd, respectively. It should be noted that in each system there are water losses for backwashing the treatment equipment and flushing pipes. These losses are estimated to be an average of 4,267 gpd, and 1,566 gpd, respectively.

Water consumption was also measured for approximately the same time. From December 1, 2009 to October 10, 2010, the total consumption volumes for the Unit 17 and Cimmaron systems were estimated to be 69.8 MG and 8.7 MG, respectively. This results in an average daily consumption rates of 223,000 gpd and 27,800 gpd, respectively.

Comparing water consumption to water production reveals a large disparity. Removing the estimated losses for backwashing and flushing, the total water losses for the Unit 17 and Cimmaron systems are 76,000 gpd, and 7,500 gpd respectively. It is expected that these losses are largely due to leakage and line breaks in an aging water system. In Unit 17, water losses account for 25% of the total production volume. In this part of the system, higher water losses would be expected due to older infrastructure and more line breaks. In Cimmaron, water losses account for approximately 20% of the total production volume.

4.0 HYDRAULIC MODELING

4.1 System Components

A hydraulic model was prepared to simulate system operations, as well as evaluate criticality, age and TTM formation in the system. The hydraulic model begins with the groundwater level, modeled as a reservoir with the hydraulic grade set to the pumping water level established by the pumping test performed when the wells were installed. Well pumps are modeled as pumps with the pump curves and efficiencies taken directly from actual system pump curves. The storage tank is modeled as a tank with dimensions and levels set to match existing conditions.

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The distribution and fire pumps are modeled as pumps with curves for head and efficiency versus flow rate input based on actual provided pump curves. The hydropneumatic tank is modeled as a pressure vessel using the ideal gas law. The water level and pressure within the tank were measured in the field to provide a baseline for the settings required in the model. All waterlines in the model are set as PVC waterlines with a C-Coefficient of 130. The PRV is modeled as a PRV with the hydraulic grade set to maintain the requisite Zone 1 hydraulic grade.

4.2 System Topography

USGS topographic Digital Elevation Model (DEM) data was obtained. The DEM data was imported into a GIS document and elevations were translated onto the water system components. The service area for the Willow Valley Water Company is relatively flat with an elevation differential of only 24 feet across the entire service area.

4.3 Design Criteria

Global Water has established a set of design criteria for water systems to ensure that adequate pressures and flows are available to consumers without causing excessive wear in the system. These criteria are summarized below.

Table 1 - Global Water Design Criteria	
Parameter	Value
Minimum System Pressure (Peak Hour Demand)	40 psi
Maximum System Pressure ¹ (Static)	80 psi
Minimum System Pressure (Max Day Plus Fire Flow Demand)	20 psi
Maximum Pipe Velocity (Max Day Demand)	5 fps
Maximum Pipe Head Loss Gradient (Max Day Demand)	6 ft/1,000 ft
Maximum Pipe Velocity (Peak Hour Demand)	6 fps
Maximum Pipe Head Loss Gradient (Peak Hour Demand)	8 ft/1,000 ft
Maximum Pipe Velocity (Max Day Plus Fire Flow Demand)	8 fps
1. Static pressures in excess of 80 psi may be permitted if individual PRVs are installed on all homes that may experience these pressures.	

4.4 Steady-State Demand Simulations

The system was modeled for average day, maximum day, and peak hour demand conditions. A fire flow evaluation was also performed to determine the effects of fire flow on the system. Demands were entered into the model for each water meter currently connected to the system. Demand placement was selected to conservatively estimate the head losses in the system. The detailed results of the steady state water system modeling are included in Appendix A.

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Table 2 - Steady State Model Output Summary

Scenario	Minimum System Pressure (psi)		Maximum System Pressure (psi)		Maximum Velocity (fps)		Maximum Head Loss Gradient (ft/1,000 ft)		Minimum Fire Flow Available (gpm)	
	Value	Node	Value	Node	Value	Pipe	Value	Pipe	Value	Node
Ave. Day Demand	48.3	J-301	75.0	J-175	12.77	P-370	148.07	P-370	NA	
Max Day Demand	48.2	J-301	74.5	J-175	12.77	P-370	148.07	P-370		
Peak Hour Demand	47.9	J-301	73.3	J-175	12.77	P-370	148.07	P-370	NA	

From the system results summary, it may be seen that pressures within the system are within a reasonable level. High system velocities and head loss gradients are experienced within the existing 4-inch diameter pipes. The pipe experiencing the highest head loss and velocity is a 4-inch pipe connecting the existing 500 gpm Cimmaron well to the treatment system. There are a total of two pipes that exceed the velocity constraints. The second pipe only marginally exceeds the constraint with a maximum velocity of 8.81 fps during peak hour demands, and 6.57 fps during maximum day demand. This second pipe is a 4-inch hydropneumatic tank connection line at the Green Valley Road WDC.

A total of seven (7) pipes exceed the maximum day head loss gradient constraint, including the two pipes described above. All of these pipes are 4-inches in diameter. Three of the pipes are located immediately adjacent to the Green Valley Road WDC, with the remainder located within the Green Valley Road WDC, the Cimmaron WDC or the Kingsley Road WDC. It is recommended that waterline replacements be considered for these pipes to provide more reasonable head losses. The pipes and associated maximum day head loss gradients are summarized in the table below:

Table 3 - Maximum Day Demand Pipe Summary Table

Label	Install. Year	Diameter (inches)	Material	MDD Velocity (fps)	MDD Head Loss Gradient (ft/1,000 ft)	Description
P-370	1998	4	PVC	12.77	148.07	Connects Cimmaron Well to treatment system
P-214	1998	4	DIP	6.57	43.23	Green Valley Road hydropneumatic tank discharge
P-222	1998	4	DIP	5.17	27.15	Commercial Street hydropneumatic tank fill
P-206	1971	4	PVC	4.09	18	Adjacent to Green Valley Road WDC discharge
P-196	1995	4	DIP	2.84	9.15	Kingsley Road WDC hydropneumatic tank discharge
P-207	1971	4	PVC	2.47	7.09	Adjacent to Green Valley Road WDC discharge
P-137	1971	4	PVC	2.41	6.73	Adjacent to Green Valley Road WDC discharge

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A total of nine (9) pipes exceed the peak hour head loss gradient constraint, including the all seven pipes described above under the maximum day demand pipe summary. The additional two pipes are 6-inch diameter pipes within the existing Green Valley Road WDC. It is recommended that waterline replacements be considered for these pipes to provide more reasonable head losses. The pipes and associated maximum day head loss gradients are summarized in the table below:

Table 4 - Peak Hour Demand Pipe Summary Table						
Label	Install. Year	Diameter (inches)	Material	MDD Velocity (fps)	MDD Head Loss Gradient (ft/1,000 ft)	Description
P-370	1998	4	PVC	12.77	148.07	Connects Cimmaron Well to treatment system
P-214	1998	4	Ductile Iron	8.81	74.56	Green Valley Road hydropneumatic tank discharge
P-196	1995	4	Ductile Iron	7.18	50.96	Commercial Street hydropneumatic tank fill
P-206	1971	4	PVC	5.55	31.64	Adjacent to Green Valley Road WDC discharge
P-222	1998	4	Ductile Iron	4.17	18.66	Commercial Street hydropneumatic tank fill
P-207	1971	4	PVC	3.27	11.86	Adjacent to Green Valley Road WDC discharge
P-137	1971	4	PVC	3.12	10.92	Adjacent to Green Valley Road WDC discharge
P-213	1998	6	Ductile Iron	3.92	10.35	Green Valley Road hydropneumatic tank discharge
P-212	1998	6	Ductile Iron	3.92	10.34	Green Valley Road WDC discharge

4.5 Water Age/TTHM Formation Analysis

TTHMs most commonly form when organic carbon is oxidized by chlorine. The dosage of chlorine reportedly required in the raw well water in order to maintain chlorine residual in the system is 11 mg/L. This is likely due to the high amount of organics in the groundwater (2 mg/L). The post treatment chlorine residual after the oxidation of organics and iron and filtration is less than 2 mg/L. Therefore it is likely that high formation of TTHMs is occurring at this point in the system.

Another study evaluating the general water quality in the system is being conducted that recommends a change in the oxidant used prior to treatment. It is being recommended that potassium permanganate, chlorine dioxide, or ozone be used to oxidize the organics and the iron prior to treatment. Chlorine will then be dosed at another point after treatment to ensure chlorine residuals are maintained in the system. Water age evaluation will provide an

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indication of whether TTHM formation will continue to be an issue once the initial oxidation of organics is accomplished with another oxidant that does not contribute to TTHM formation.

Generally, in water systems, TTHM formation is directly related to the age of the water in the system. Therefore, water age will be evaluated, and the level of TTHM formation in the system may be evaluated based on water age. In order to evaluate the water age, and consequently the TTHM formation in the system, an extended period simulation was run for average day demands.

Initial water age values were iteratively adjusted so that the system age would equalize more quickly. The simulation was run for a total of 120 hours so that water ages would represent equalized values. Water age was tracked at various points in the system. These results are summarized below. A water system map including water age contours is provided in of Appendix B. Please note that the water age contours are the water age at 120 hours, and do not necessarily represent the maximum water age. Detailed graphs of water age versus time through the simulation at each of these points in the system are also available in Appendix B.

Table 5 - Extended Period Model Output Summary

Location	Minimum Age ¹ (hours)	120-Hour Age (hours)	Maximum Age ¹ (hours)
Green Valley WDC (Measured at hydropneumatic tank)	7	9.8	15
Kingsley Road WDC (Measured at hydropneumatic tank)	19.5	20.4	25
Commercial Street WDC (Measured at hydropneumatic tank)	39.5	41.5	49
Cimmaron WDC (Measured at hydropneumatic tank)	20.5	34.8	44
467 KINGSLEY	32	37.4	45.5
7793 GREEN VALLEY	8.5	12.7	15.5
8170 ASPEN DR	11	16.5	20.5
1093 PINE DR	9	13.0	20
1430 COMM. ST.	47.5	48.8	52.5
8663 ASH ST	45.5	50.5	54
1568 E PUMA RD	42	43.6	47.5
1648 E VALLEY PKWY	27.5	35.0	47.5
1770 E EMILY DR	52	57.0	60

1. Minimum/Maximum Water Age were evaluated as the minimum/maximum value for water age experienced after the water age equalized for the given node. Please refer to the graphs in Appendix B for more details.

The AWWA/AWARF Water Industry Data base indicates average distribution retention time of 1.3 days (31 hours), and a maximum retention time of 3.0 days (72 hours) to be acceptable. Of 202 nodes in the system, approximately 12 nodes within the Cimmaron service area, 4 nodes within the Commercial Street WDC service area and one node within the Unit 17 WDC service

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area regularly experience water ages in excess of 72 hours. All of the nodes within the Unit 17 and Commercial Street WDC service areas are at the end of long dead end lines with relatively small demands. Table 6 below summarizes the high water ages experienced within the system.

Table 6 - High Water Age Summary			
Service Area	Homes with Ages in Excess of 72 Hours	Total Connections	Percentage of Connections
Unit 17 WDC	3 Residential	1,419 Residential	0.2%
Commercial Street WDC	9 Residential	137 Residential 23 Commercial	5.6%
Cimmaron	72 Residential	280 Residential	25.7%

The water ages in the Cimmaron WDC service area tend to be larger than the Unit 17 system, despite the shorter distance of travel for three primary reasons. The reservoir at the Cimmaron site is significantly larger than the Unit 17 reservoir. To mitigate this, only the bottom 5 feet of the reservoir is currently in use. The second reason for higher water ages is that the system is constructed of 8-inch and 10-inch water lines, whereas the majority of the Unit 17 system is 4-inch and 6-inch diameter pipe. The larger pipe diameter in the Cimmaron system results in less system flushing for an equivalent usage. The final reason for greater water age is that the demands in the Unit 17 area are approximately 42% higher, resulting in significantly less system flushing per connection.

None of the locations used for water quality testing fall within these areas, and consequently, higher TTHM formation found in testing results is likely not due specifically to water age. From this analysis it appears that the formation of TTHMs is due to the current practice of oxidizing organics with high dosages of chlorine. Once a different oxidant is utilized, it is expected that TTHM formation will no longer be an issue.

4.6 Criticality Analysis

A criticality analysis was performed using Watergems by Bentley Systems Inc. The criticality analysis was used to identify areas where inoperable valves and/or lack of valves leaves large segments of the system exposed in the event of a water main break, or other service shut down. Due to the age and condition of the system, the areas of primary concern are within the older parts of the system within the Unit 17 and Commercial Street systems. In these areas, few of the valves installed are operable. It is recommended that replacement of these valves be initiated to minimize the number of services impacted by shutdowns in the system.

5.0 20-YEAR CAPITAL IMPROVEMENTS PLAN

5.1 Project Descriptions

The main goal of the 20-year capital improvement plan (CIP) will be to replace the aging infrastructure within the system. This will consist primarily of replacing all of 4-inch and 6-inch water mains within the King Street and Commercial Street systems. The 4-inch lines within the Unit 17 portion of the system will also require replacement. A phasing Plan will be developed to address repairs of the system identified with the highest criticality. Due to the size of the King Street area, it will be divided into two projects. Because of the age of the system, and the large number of services affected, the King Street areas will be completed first, followed by the Commercial Street area, and finally the Unit 17 area. The areas requiring watermain replacement are presented below in Figure 5.

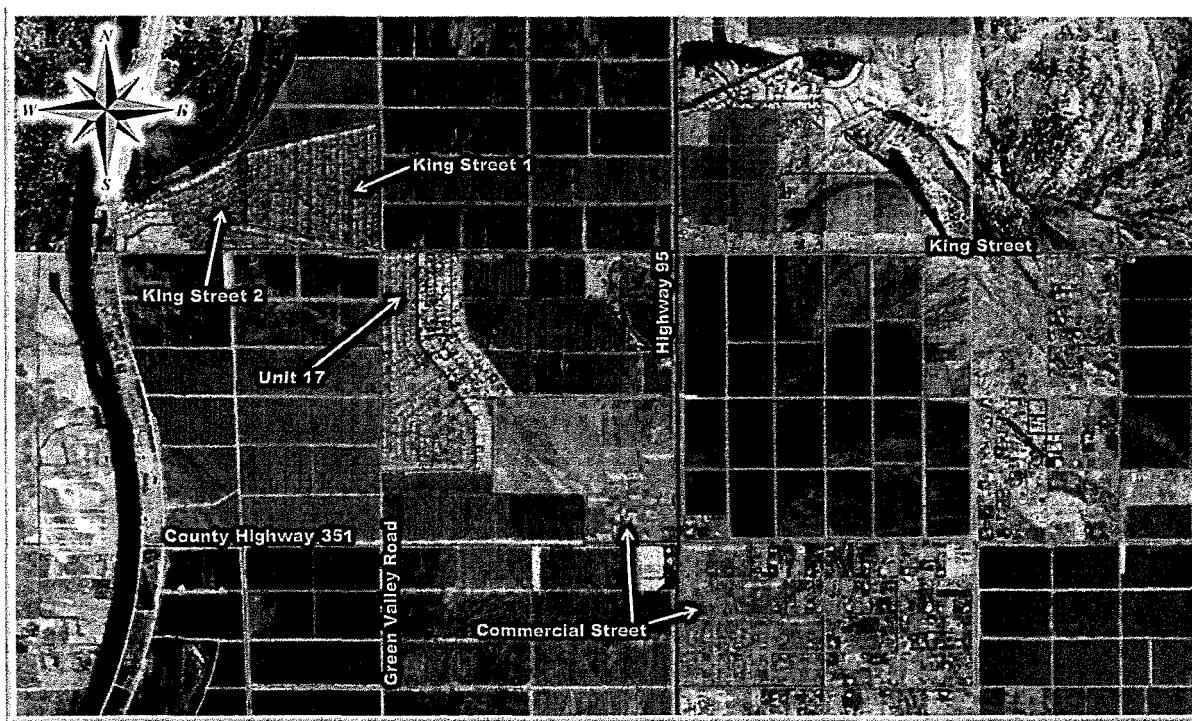


Figure 5 - Watermains Replacement Areas

In the watermain replacement areas, the majority of the existing valves have become inoperable. It is necessary to have the ability to isolate areas of the system in order to repair line breaks, and perform other system maintenance as necessary. Current inoperability of the valves results in an excessive number of services affected by line breaks and maintenance activities. Therefore, it is recommended that a valve replacement program be initiated.

Additionally, existing water quality issues in the system necessitate that the water treatment systems and/or processes be modified/upgraded to neutralize water quality concerns.

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5.2 Schedule

The treatment system modifications/upgrades have been scheduled and budgeted for in the 2011 fiscal year. It is recommended that the valve replacement program be started as soon as possible. Scheduling of the water mains replacement will take place as budget allows. The total projected cost for the CIP improvements is \$3.6 Million. Based on the 20-year period of the plan, a minimum CIP budget of \$180,000 per year is required. A detailed schedule of the projected replacements and a breakdown of the projected budgets is included in Appendix C. A summary of the CIP plan is provided below in Table 7

Table 7 - 20-Year Capital Improvement Plan Summary		
Project	Budget	Projected Year
Corrosion Control Upgrades	\$125,000	2,011
Valve Replacement	\$57,200	2,012
King Street Watermain Replacement 1	\$775,720	2,012
King Street Watermain Replacement 2	\$775,720	2,012
Commercial Street Watermain Replacement	\$886,400	2,013
Unit 17 Watermain Replacement	\$989,360	2,013

6.0 CONCLUSIONS

The analysis performed herein provided an audit of the existing system infrastructure. The audit revealed that the existing WDCs currently offer a reasonable level of service, though some modification to the treatment process is required to rectify water quality concerns. It also revealed that much of the system piping is in poor condition due to system age. The condition of the piping is resulting in frequent line breaks. Additionally, valve failures throughout the system result in wide impact to customers when line breaks occur.

A 20-year CIP plan was developed that includes the updating of the treatment processes to bring water quality into compliance. The plan also provides for strategic replacement of valves throughout the system in order to provide better system isolation in the event of main breaks. Finally, the plan provides for the replacement of the aging system piping over the next 20 years.

Water modeling was also performed. The water modeling showed that the system is capable of delivering adequate pressures and flows to the system. It also demonstrates that water ages within the system are within a reasonable level. It was determined, therefore, that high TTHM levels within the system are due to another factor.

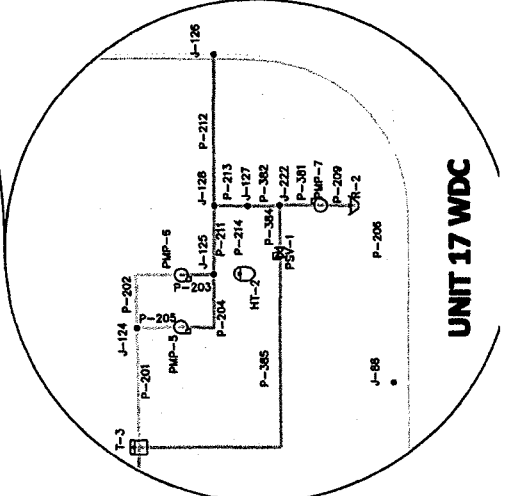
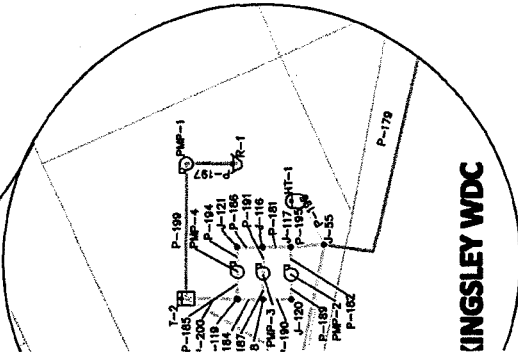
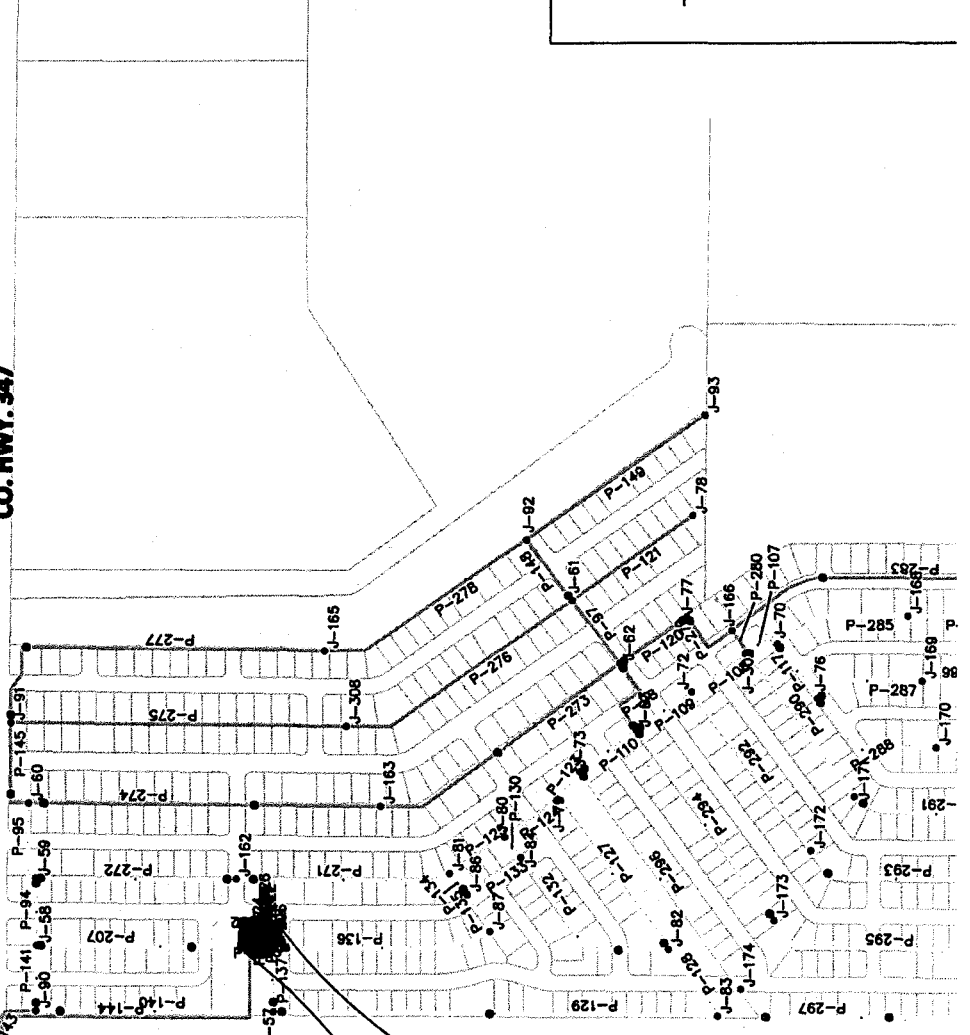
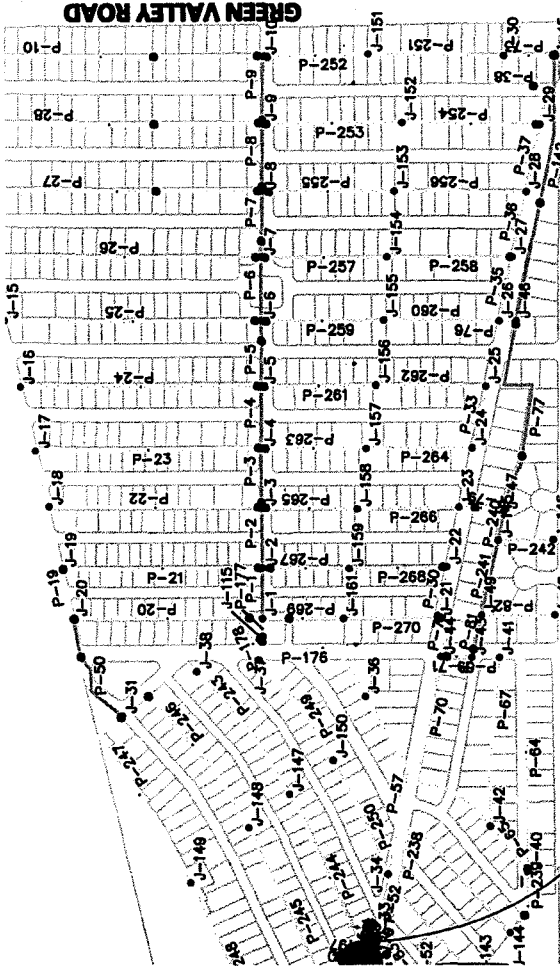
It was determined that the high TTHM levels within the system are likely due to the direct oxidation of high levels of TOC within the source water. This is confirmed by the high levels of chlorine dosage required in order to maintain adequate residual in the system. Alternative oxidants are currently under evaluation in conjunction with a separate corrosion control study already underway by Global Water Resources. Once an alternative oxidant is implemented into the treatment process, and chlorination is moved to after the treatment process, it is expected that TTHM levels within the system will drop dramatically.

Appendix A - Steady-State Model Results

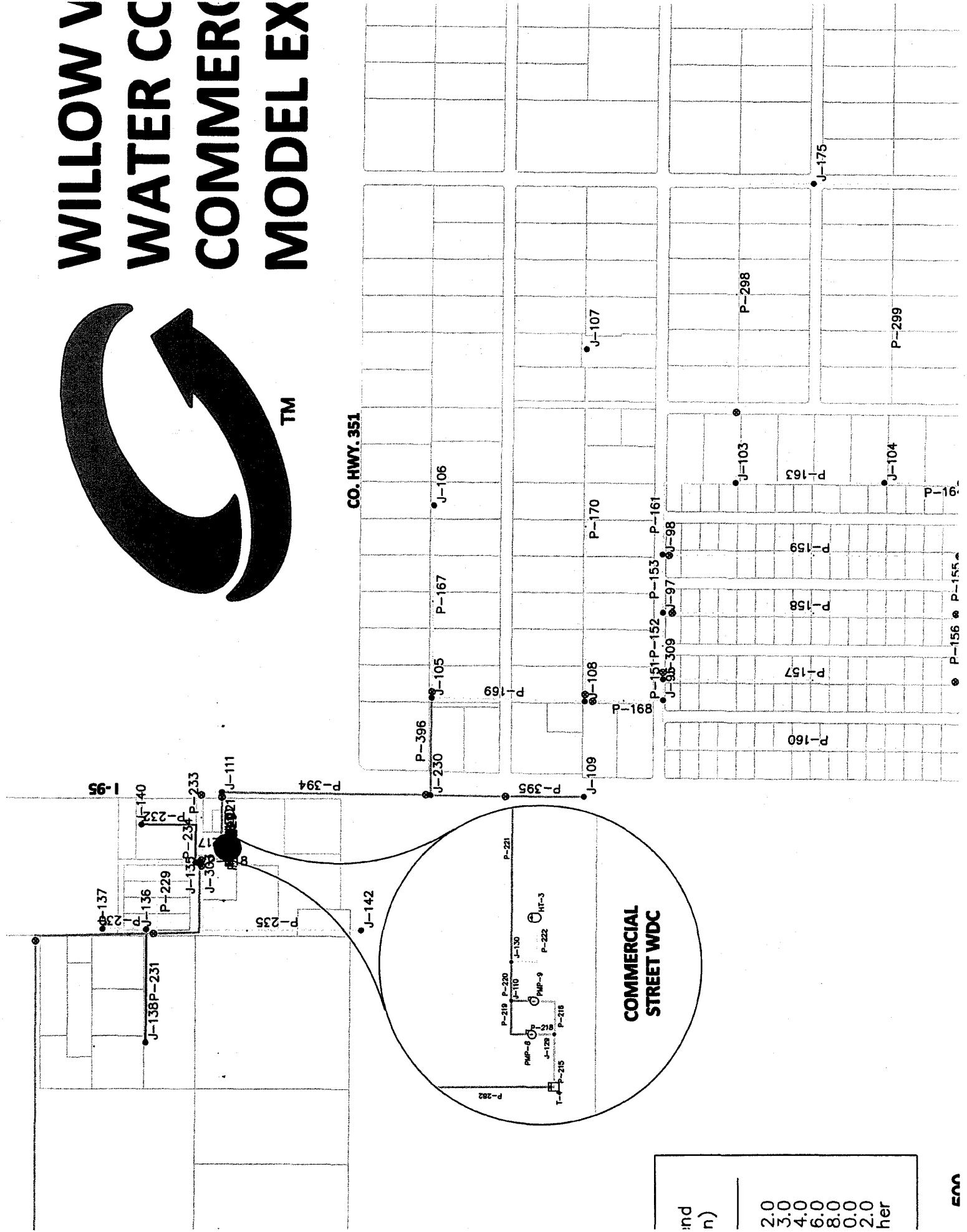
WILLOW V WATER CC UNIT 17 M EXHIBIT



CO. HWY. 347



**COMMERCIAL
STREET WDC**



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Willow Valley Water Company
Active Scenario: ADD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-1	479.99	603.43	53.4	0	Unit 17
J-2	479.99	603.45	53.4	0	Unit 17
J-3	479.33	603.50	53.7	0	Unit 17
J-4	479.00	603.53	53.9	0	Unit 17
J-5	479.00	603.57	53.9	0	Unit 17
J-6	478.35	603.64	54.2	0	Unit 17
J-7	478.35	603.67	54.2	0	Unit 17
J-8	477.69	603.70	54.5	0	Unit 17
J-9	477.69	603.71	54.5	0	Unit 17
J-10	476.70	603.72	55.0	0	Unit 17
J-12	476.70	603.68	54.9	5,604	Unit 17
J-13	477.69	603.67	54.5	5,417	Unit 17
J-14	478.35	603.67	54.2	5,978	Unit 17
J-15	479.33	603.62	53.8	5,417	Unit 17
J-16	479.99	603.55	53.5	5,604	Unit 17
J-17	479.99	603.52	53.4	5,417	Unit 17
J-18	479.99	603.49	53.4	5,044	Unit 17
J-19	480.64	603.37	53.1	5,230	Unit 17
J-20	480.64	603.37	53.1	3,549	Unit 17
J-21	479.33	603.47	53.7	0	Unit 17
J-22	479.33	603.46	53.7	0	Unit 17
J-23	479.33	603.60	53.8	0	Unit 17
J-24	479.33	603.54	53.7	0	Unit 17
J-25	479.33	603.54	53.7	0	Unit 17
J-26	479.33	603.86	53.9	0	Unit 17
J-27	479.00	603.82	54.0	0	Unit 17
J-28	478.35	603.82	54.3	0	Unit 17
J-29	478.35	603.88	54.3	0	Unit 17
J-30	476.70	604.21	55.2	934	Unit 17
J-31	480.97	603.06	52.8	0	Unit 17
J-32	483.27	603.02	51.8	0	Unit 17
J-33	479.99	603.01	53.2	0	Unit 17
J-34	479.99	603.15	53.3	0	Unit 17
J-36	479.99	603.26	53.3	2,989	Unit 17
J-37	479.99	603.34	53.4	0	Unit 17
J-38	479.99	602.89	53.2	8,406	Unit 17
J-40	479.99	603.42	53.4	4,110	Unit 17
J-41	479.33	603.50	53.7	0	Unit 17
J-42	479.99	603.45	53.4	5,604	Unit 17
J-43	479.33	603.53	53.7	0	Unit 17
J-44	479.99	603.50	53.4	0	Unit 17
J-45	477.36	604.68	55.1	0	Unit 17
J-46	479.33	603.91	53.9	1,494	Unit 17
J-47	479.33	603.63	53.8	2,802	Unit 17
J-48	479.99	603.56	53.5	934	Unit 17
J-49	479.33	603.56	53.7	1,308	Unit 17

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-50	484.91	603.01	51.1	560	Unit 17
J-52	479.99	603.01	53.2	747	Unit 17
J-53	479.99	603.01	53.2	747	Unit 17
J-54	481.63	603.01	52.5	3,176	Unit 17
J-55	479.99	603.01	53.2	0	Unit 17
J-57	479.33	607.86	55.6	0	Unit 17
J-58	475.06	606.54	56.9	3,362	Unit 17
J-59	475.06	606.54	56.9	0	Unit 17
J-60	475.06	606.49	56.9	0	Unit 17
J-61	479.00	606.49	55.2	0	Unit 17
J-62	479.33	606.49	55.0	0	Unit 17
J-63	479.33	606.50	55.0	0	Unit 17
J-64	479.33	606.48	55.0	0	Unit 17
J-65	479.99	606.49	54.7	0	Unit 17
J-66	479.33	606.47	55.0	1,121	Unit 17
J-67	479.33	606.47	55.0	0	Unit 17
J-68	479.33	606.47	55.0	2,242	Unit 17
J-69	479.33	606.47	55.0	0	Unit 17
J-70	476.05	606.48	56.4	0	Unit 17
J-72	479.99	606.49	54.7	0	Unit 17
J-73	479.00	606.70	55.2	0	Unit 17
J-74	479.99	606.51	54.7	0	Unit 17
J-76	476.70	606.47	56.1	0	Unit 17
J-77	479.99	606.49	54.7	1,308	Unit 17
J-78	479.99	606.49	54.7	2,802	Unit 17
J-79	479.00	606.88	55.3	0	Unit 17
J-80	478.35	607.02	55.7	0	Unit 17
J-81	479.00	607.04	55.4	0	Unit 17
J-82	479.33	607.04	55.3	4,483	Unit 17
J-83	479.99	607.14	55.0	4,296	Unit 17
J-84	479.00	607.04	55.4	1,868	Unit 17
J-86	479.00	607.11	55.4	0	Unit 17
J-87	479.33	607.41	55.4	4,670	Unit 17
J-88	479.00	609.10	56.3	0	Unit 17
J-90	476.05	605.29	55.9	1,868	Unit 17
J-91	475.06	606.49	56.9	0	Unit 17
J-92	478.35	606.49	55.4	0	Unit 17
J-93	479.99	606.49	54.7	2,055	Unit 17
J-95	475.72	645.27	73.4	0	Unit 17
J-97	475.72	645.22	73.3	0	Unit 17
J-98	475.06	645.21	73.6	0	Unit 17
J-99	475.06	645.20	73.6	5,230	Unit 17
J-100	475.06	645.20	73.6	5,230	Unit 17
J-101	475.06	645.21	73.6	4,857	Unit 17
J-102	475.72	645.26	73.4	2,615	Unit 17
J-103	475.06	645.20	73.6	747	Unit 17

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-104	474.41	645.20	73.9	2,802	Unit 17
J-105	475.06	645.56	73.8	0	Unit 17
J-106	475.06	645.56	73.8	374	Unit 17
J-107	473.42	645.36	74.4	374	Unit 17
J-108	476.05	645.36	73.3	747	Unit 17
J-109	476.05	645.58	73.3	0	Unit 17
J-110	476.05	645.69	73.4	0	Unit 17
J-111	476.05	645.61	73.4	3,325	Unit 17
J-115	479.99	603.37	53.4	0	Unit 17
J-116	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-117	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-118	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-119	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-120	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-121	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-124	478.35	501.10	9.8	0	Transmission
J-125	478.35	611.31	57.5	0	Unit 17
J-126	478.35	611.10	57.4	0	Unit 17
J-127	478.35	611.35	57.5	0	Unit 17
J-128	478.35	611.31	57.5	0	Unit 17
J-129	476.05	495.03	8.2	0	Transmission
J-130	476.05	645.64	73.4	0	Unit 17
J-135	476.05	645.59	73.4	0	Unit 17
J-136	476.70	645.59	73.1	2,217	Unit 17
J-137	476.70	645.58	73.1	1,663	Unit 17
J-138	478.35	645.56	72.3	1,663	Unit 17
J-140	475.72	645.56	73.5	2,217	Unit 17
J-142	476.70	645.59	73.1	1,663	Unit 17
J-143	479.99	603.05	53.2	2,802	Unit 17
J-144	479.99	603.34	53.4	3,176	Unit 17
J-145	479.33	603.61	53.8	0	Unit 17
J-146	479.99	603.61	53.5	747	Unit 17
J-147	479.99	602.91	53.2	8,406	Unit 17
J-148	480.64	603.02	52.9	7,659	Unit 17
J-149	475.06	603.03	55.4	3,923	Unit 17
J-150	479.99	603.22	53.3	5,604	Unit 17
J-151	476.70	603.91	55.0	3,923	Unit 17
J-152	477.36	603.78	54.7	4,857	Unit 17
J-153	477.69	603.74	54.5	5,044	Unit 17
J-154	478.35	603.73	54.2	4,483	Unit 17
J-155	478.35	603.73	54.2	4,296	Unit 17
J-156	479.00	603.55	53.9	4,296	Unit 17
J-157	479.00	603.53	53.9	3,736	Unit 17
J-158	479.33	603.54	53.7	3,736	Unit 17
J-159	479.33	603.46	53.7	3,362	Unit 17
J-161	479.33	603.44	53.7	2,428	Unit 17

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-162	477.69	606.72	55.8	7,098	Unit 17
J-163	478.35	606.49	55.4	10,461	Unit 17
J-165	477.36	606.49	55.9	4,857	Unit 17
J-166	479.33	606.48	55.0	374	Unit 17
J-167	479.33	606.48	55.0	2,989	Unit 17
J-168	479.33	606.47	55.0	3,736	Unit 17
J-169	479.99	606.47	54.7	2,802	Unit 17
J-170	479.99	606.47	54.7	2,428	Unit 17
J-171	479.00	606.47	55.2	6,725	Unit 17
J-172	479.99	606.48	54.7	6,725	Unit 17
J-173	479.33	606.49	55.0	8,219	Unit 17
J-174	479.99	606.57	54.8	4,670	Unit 17
J-175	471.13	645.20	75.3	2,615	Unit 17
J-176	470.14	599.00	55.8	0	Cimarron
J-177	470.14	599.00	55.8	0	Cimarron
J-178	474.41	599.00	53.9	0	Cimarron
J-179	475.72	598.99	53.3	0	Cimarron
J-180	476.05	598.99	53.2	0	Cimarron
J-181	475.06	598.99	53.6	0	Cimarron
J-182	475.06	598.99	53.6	395	Cimarron
J-183	470.14	598.99	55.7	2,372	Cimarron
J-184	470.14	598.99	55.7	2,241	Cimarron
J-185	470.80	598.99	55.5	923	Cimarron
J-186	470.80	598.99	55.5	2,241	Cimarron
J-187	474.08	(N/A)	(N/A)	(N/A)	Cimarron
J-188	472.77	598.99	54.6	1,582	Cimarron
J-189	466.86	598.99	57.2	1,318	Cimarron
J-190	475.06	598.99	53.6	923	Cimarron
J-191	475.06	598.99	53.6	527	Cimarron
J-192	468.50	598.99	56.5	1,186	Cimarron
J-193	470.14	598.99	55.7	395	Cimarron
J-194	475.06	598.99	53.6	264	Cimarron
J-196	468.50	598.99	56.5	527	Cimarron
J-197	469.49	598.99	56.0	2,241	Cimarron
J-199	470.80	598.99	55.5	791	Cimarron
J-200	472.77	599.00	54.6	264	Cimarron
J-202	477.69	598.99	52.5	791	Cimarron
J-203	479.33	598.99	51.8	5,931	Cimarron
J-204	472.77	598.99	54.6	923	Cimarron
J-205	466.86	598.99	57.2	791	Cimarron
J-206	470.14	598.99	55.7	791	Cimarron
J-207	469.49	598.99	56.0	527	Cimarron
J-209	475.72	598.99	53.3	2,900	Cimarron
J-210	470.14	499.51	12.7	0	Transmission
J-211	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-212	470.14	485.05	6.4	0	Transmission

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Junction Report (WVWC Model.wtg)
Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-213	470.14	485.05	6.4	0	Transmission
J-214	470.14	485.05	6.4	0	Transmission
J-215	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-216	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-217	470.14	599.00	55.8	0	Cimarron
J-218	470.14	499.47	12.7	0	Transmission
J-219	470.14	485.05	6.4	0	Transmission
J-220	470.14	485.05	6.4	0	Transmission
J-222	478.35	501.10	9.8	0	Transmission
J-230	475.00	645.58	73.8	0	<None>
J-301	491.47	603.01	48.3	2,055	Unit 17
J-302	477.69	606.48	55.7	0	Unit 17
J-303	476.05	645.60	73.4	0	Unit 17
J-304	471.13	599.00	55.3	1,582	Cimarron
J-305	470.14	598.99	55.7	527	Cimarron
J-306	476.70	598.99	52.9	3,954	Cimarron
J-307	476.70	603.68	54.9	7,285	Unit 17
J-308	477.69	606.48	55.7	11,208	Unit 17
J-309	475.06	645.25	73.6	0	Unit 17

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in.)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-1	6.0	J-1	J-2	189.92	130.0	-47,222	0.37	0.13	<None>
P-2	6.0	J-2	J-3	228.21	130.0	-59,056	0.47	0.20	<None>
P-3	6.0	J-3	J-4	228.97	130.0	-49,265	0.39	0.14	<None>
P-4	6.0	J-4	J-5	233.62	130.0	-53,180	0.42	0.16	<None>
P-5	6.0	J-5	J-6	244.30	130.0	-68,318	0.54	0.26	<None>
P-6	6.0	J-6	J-7	240.39	130.0	-52,799	0.42	0.16	<None>
P-7	6.0	J-7	J-8	250.01	130.0	-39,111	0.31	0.09	<None>
P-8	6.0	J-8	J-9	257.23	130.0	-31,879	0.25	0.06	<None>
P-9	6.0	J-9	J-10	253.65	130.0	-24,051	0.19	0.04	<None>
P-10	4.0	J-10	J-307	1,203.1 1	130.0	8,456	0.15	0.04	<None>
P-11	4.0	J-307	J-12	262.39	130.0	1,171	0.02	0.00	<None>
P-12	4.0	J-12	J-13	258.91	130.0	3,306	0.06	0.01	<None>
P-13	4.0	J-13	J-14	256.57	130.0	4,021	0.07	0.01	<None>
P-19	4.0	J-19	J-20	191.40	130.0	9,197	0.16	0.05	<None>
P-20	4.0	J-20	J-1	705.52	130.0	-13,133	0.23	0.09	<None>
P-21	4.0	J-19	J-2	746.50	130.0	-14,428	0.26	0.11	<None>
P-22	4.0	J-18	J-3	793.44	130.0	-5,044	0.09	0.02	<None>
P-23	4.0	J-17	J-4	841.28	130.0	-5,417	0.10	0.02	<None>
P-24	4.0	J-5	J-16	896.58	130.0	5,604	0.10	0.02	<None>
P-25	4.0	J-15	J-6	955.53	130.0	-5,417	0.10	0.02	<None>
P-26	4.0	J-7	J-14	1,018.0 8	130.0	1,957	0.03	0.00	<None>
P-27	4.0	J-13	J-8	1,078.1 4	130.0	-6,132	0.11	0.02	<None>
P-28	4.0	J-12	J-9	1,138.2 6	130.0	-7,739	0.14	0.03	<None>
P-30	4.0	J-21	J-22	194.15	130.0	5,956	0.11	0.02	<None>
P-33	4.0	J-24	J-25	237.98	130.0	-5,238	0.09	0.02	<None>
P-35	4.0	J-26	J-27	246.80	130.0	17,194	0.30	0.15	<None>
P-36	4.0	J-27	J-28	252.46	130.0	-2,933	0.05	0.01	<None>
P-37	4.0	J-28	J-29	259.01	130.0	-21,341	0.38	0.22	<None>
P-38	4.0	J-29	J-30	430.12	130.0	-41,765	0.74	0.76	<None>
P-50	3.0	J-31	J-20	432.69	130.0	-18,781	0.59	0.70	<None>
P-52	4.0	J-33	J-34	259.17	130.0	-34,574	0.61	0.54	<None>
P-57	4.0	J-34	J-36	719.89	130.0	-17,473	0.31	0.15	<None>
P-64	4.0	J-41	J-40	899.10	130.0	13,164	0.23	0.09	<None>
P-65	4.0	J-40	J-42	220.23	130.0	-16,497	0.29	0.14	<None>
P-67	4.0	J-42	J-41	637.59	130.0	-12,327	0.22	0.08	<None>
P-69	4.0	J-43	J-41	101.42	130.0	25,490	0.45	0.30	<None>
P-70	4.0	J-42	J-44	813.81	130.0	-9,774	0.17	0.05	<None>
P-71	4.0	J-44	J-43	114.60	130.0	-27,236	0.48	0.34	<None>
P-72	4.0	J-44	J-21	187.91	130.0	17,461	0.31	0.15	<None>
P-73	4.0	J-30	J-45	190.20	130.0	-79,128	1.40	2.48	<None>

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-76	4.0	J-26	J-46	64.40	130.0	-42,428	0.75	0.78	<None>
P-77	6.0	J-46	J-47	847.98	130.0	77,088	0.61	0.33	<None>
P-79	4.0	J-23	J-47	167.65	130.0	-18,572	0.33	0.17	<None>
P-81	6.0	J-49	J-43	160.17	130.0	52,726	0.42	0.16	<None>
P-82	4.0	J-48	J-49	274.03	130.0	-934	0.02	0.00	<None>
P-83	4.0	J-33	J-52	298.01	130.0	-3,044	0.05	0.01	<None>
P-86	8.0	J-50	J-53	599.97	130.0	-560	0.00	0.00	<None>
P-87	8.0	J-53	J-52	547.30	130.0	-15,782	0.07	0.00	<None>
P-88	8.0	J-53	J-54	282.98	130.0	14,474	0.06	0.00	<None>
P-89	4.0	J-32	J-55	261.54	130.0	7,199	0.13	0.03	<None>
P-91	8.0	J-54	J-55	762.08	130.0	9,244	0.04	0.00	<None>
P-92	8.0	J-54	J-301	415.19	130.0	2,055	0.01	0.00	<None>
P-94	4.0	J-58	J-59	250.14	130.0	-4,673	0.08	0.01	<None>
P-95	4.0	J-59	J-60	314.91	130.0	17,592	0.31	0.15	<None>
P-97	6.0	J-61	J-62	300.47	130.0	-10,003	0.08	0.01	<None>
P-98	6.0	J-62	J-63	332.81	130.0	-25,679	0.20	0.04	<None>
P-101	4.0	J-65	J-64	262.03	130.0	8,229	0.15	0.04	<None>
P-102	4.0	J-64	J-66	353.49	130.0	5,899	0.10	0.02	<None>
P-103	4.0	J-66	J-67	266.83	130.0	2,894	0.05	0.01	<None>
P-104	4.0	J-67	J-68	242.81	130.0	2,222	0.04	0.00	<None>
P-105	4.0	J-68	J-69	254.80	130.0	-171	0.00	0.00	<None>
P-107	4.0	J-70	J-302	137.01	130.0	-8,314	0.15	0.04	<None>
P-108	4.0	J-302	J-72	262.18	130.0	-5,937	0.11	0.02	<None>
P-109	4.0	J-72	J-63	254.02	130.0	-10,331	0.18	0.06	<None>
P-110	4.0	J-63	J-73	264.11	130.0	-41,425	0.73	0.75	<None>
P-112	4.0	J-74	J-65	259.32	130.0	11,034	0.20	0.06	<None>
P-117	4.0	J-70	J-76	258.65	130.0	4,407	0.08	0.01	<None>
P-120	6.0	J-77	J-62	304.17	130.0	-11,888	0.09	0.01	<None>
P-121	6.0	J-78	J-61	558.25	130.0	-2,802	0.02	0.00	<None>
P-123	4.0	J-73	J-79	133.72	130.0	-57,129	1.01	1.36	<None>
P-124	4.0	J-79	J-80	244.79	130.0	-35,224	0.62	0.55	<None>
P-125	4.0	J-80	J-81	247.36	130.0	-12,225	0.22	0.08	<None>
P-127	4.0	J-79	J-82	700.56	130.0	-21,905	0.39	0.23	<None>
P-128	4.0	J-82	J-83	311.58	130.0	-26,424	0.47	0.33	<None>
P-129	4.0	J-83	J-57	1,664.15	130.0	-30,720	0.54	0.43	<None>
P-130	4.0	J-80	J-84	100.99	130.0	-23,000	0.41	0.25	<None>
P-132	4.0	J-84	J-82	727.10	130.0	-36	0.00	0.00	<None>
P-133	4.0	J-84	J-86	245.38	130.0	-24,832	0.44	0.29	<None>
P-134	4.0	J-86	J-81	102.52	130.0	41,587	0.74	0.75	<None>
P-135	4.0	J-86	J-87	162.84	130.0	-66,419	1.18	1.79	<None>
P-136	4.0	J-87	J-88	831.59	130.0	-71,089	1.26	2.03	<None>
P-137	4.0	J-88	J-57	242.85	130.0	116,735	2.07	5.09	<None>
P-140	4.0	J-57	J-90	886.68	130.0	86,015	1.53	2.89	<None>

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-141	4.0	J-90	J-58	246.95	130.0	115,993	2.06	5.03	<None>
P-142	6.0	J-45	J-46	1,018.67	130.0	121,010	0.95	0.76	<None>
P-143	6.0	J-45	J-90	319.84	130.0	200,139	1.58	1.92	<None>
P-144	6.0	J-45	T-3	1,382.73	130.0	0	0.00	0.00	<None>
P-145	6.0	J-60	J-91	376.43	130.0	10,919	0.09	0.01	<None>
P-148	6.0	J-92	J-61	289.82	130.0	-2,430	0.02	0.00	<None>
P-149	6.0	J-92	J-93	816.33	130.0	2,055	0.02	0.00	<None>
P-151	4.0	J-95	J-309	91.17	130.0	21,482	0.38	0.22	<None>
P-152	4.0	J-309	J-97	290.60	130.0	13,548	0.24	0.09	<None>
P-153	4.0	J-97	J-98	256.40	130.0	8,517	0.15	0.04	<None>
P-155	4.0	J-99	J-100	256.47	130.0	-2,877	0.05	0.01	<None>
P-156	4.0	J-100	J-101	296.34	130.0	-3,077	0.05	0.01	<None>
P-157	4.0	J-101	J-309	1,287.78	130.0	-7,934	0.14	0.04	<None>
P-158	4.0	J-97	J-100	1,293.49	130.0	5,030	0.09	0.02	<None>
P-159	4.0	J-99	J-98	1,299.39	130.0	-3,615	0.06	0.01	<None>
P-160	4.0	J-95	J-102	1,498.64	130.0	2,615	0.05	0.00	<None>
P-161	4.0	J-98	J-103	621.12	130.0	4,902	0.09	0.01	<None>
P-163	4.0	J-103	J-104	638.16	130.0	2,416	0.04	0.00	<None>
P-164	4.0	J-104	J-99	666.67	130.0	-1,262	0.02	0.00	<None>
P-167	4.0	J-105	J-106	843.42	130.0	374	0.01	0.00	<None>
P-168	4.0	J-95	J-108	336.23	130.0	-24,097	0.43	0.27	<None>
P-169	4.0	J-108	J-105	655.48	130.0	-25,218	0.45	0.30	<None>
P-170	4.0	J-107	J-108	1,532.81	130.0	-374	0.01	0.00	<None>
P-176	4.0	J-36	J-115	524.43	130.0	-20,462	0.36	0.20	<None>
P-177	4.0	J-115	J-1	77.43	130.0	-43,166	0.77	0.81	<None>
P-178	4.0	J-37	J-115	126.32	130.0	-22,704	0.40	0.25	<None>
P-179	6.0	J-33	J-55	97.06	130.0	20,806	0.16	0.03	<None>
P-181	8.0	J-116	J-117	9.05	130.0	(N/A)	(N/A)	(N/A)	<None>
P-182	8.0	J-117	PMP-2	7.33	130.0	(N/A)	(N/A)	(N/A)	<None>
P-184	8.0	J-118	J-119	8.27	130.0	(N/A)	(N/A)	(N/A)	<None>
P-185	8.0	J-119	PMP-4	8.45	130.0	(N/A)	(N/A)	(N/A)	<None>
P-186	8.0	J-116	PMP-3	8.42	130.0	(N/A)	(N/A)	(N/A)	<None>
P-187	8.0	PMP-3	J-118	8.65	130.0	(N/A)	(N/A)	(N/A)	<None>
P-189	8.0	PMP-2	J-120	9.75	130.0	(N/A)	(N/A)	(N/A)	<None>
P-190	8.0	J-120	J-118	9.19	130.0	(N/A)	(N/A)	(N/A)	<None>
P-191	8.0	J-116	J-121	8.34	130.0	(N/A)	(N/A)	(N/A)	<None>

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-194	8.0	PMP-4	J-121	8.57	130.0	(N/A)	(N/A)	(N/A)	<None>
P-195	8.0	J-117	J-55	10.66	130.0	(N/A)	(N/A)	(N/A)	<None>
P-196	4.0	J-55	HT-1	16.10	130.0	37,249	0.66	0.61	<None>
P-197	6.0	R-1	PMP-1	15.86	130.0	(N/A)	(N/A)	(N/A)	<None>
P-199	6.0	PMP-1	T-2	43.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-200	8.0	T-2	J-119	16.34	130.0	(N/A)	(N/A)	(N/A)	<None>
P-201	8.0	T-3	J-124	38.87	130.0	-1	0.00	0.00	<None>
P-202	8.0	J-124	PMP-6	32.00	130.0	(N/A)	(N/A)	(N/A)	<None>
P-203	6.0	PMP-6	J-125	10.40	130.0	(N/A)	(N/A)	(N/A)	<None>
P-204	6.0	J-125	PMP-5	28.05	130.0	1	0.00	0.00	<None>
P-205	8.0	PMP-5	J-124	14.02	130.0	1	0.00	0.00	<None>
P-206	4.0	J-88	J-126	163.27	130.0	-	3.33	12.29	<None>
P-207	4.0	J-126	J-58	926.34	130.0	114,682	2.03	4.93	<None>
P-209	6.0	R-2	PMP-7	10.69	130.0	-1	0.00	0.00	<None>
P-211	6.0	J-125	J-128	22.08	130.0	-1	0.00	0.00	<None>
P-212	6.0	J-128	J-126	49.06	130.0	302,507	2.38	4.12	<None>
P-213	6.0	J-127	J-128	10.76	130.0	302,507	2.38	4.12	<None>
P-214	4.0	J-127	HT-2	21.87	130.0	-	5.36	29.72	<None>
P-215	8.0	T-4	J-129	13.66	130.0	364,105	1.61	1.43	<None>
P-216	8.0	J-129	PMP-9	13.78	130.0	(N/A)	(N/A)	(N/A)	<None>
P-217	6.0	PMP-9	J-110	5.87	130.0	(N/A)	(N/A)	(N/A)	<None>
P-218	8.0	J-129	PMP-8	5.69	130.0	364,105	1.61	1.43	<None>
P-219	6.0	PMP-8	J-110	14.20	130.0	364,105	2.87	5.81	<None>
P-220	6.0	J-110	J-130	10.13	130.0	364,105	2.87	5.81	<None>
P-221	6.0	J-130	J-111	244.87	130.0	38,339	0.30	0.09	<None>
P-222	4.0	HT-3	J-130	18.66	130.0	-	5.78	34.08	<None>
P-229	4.0	J-135	J-136	496.25	130.0	5,542	0.10	0.02	<None>
P-230	4.0	J-136	J-137	186.52	130.0	1,663	0.03	0.00	<None>
P-231	2.0	J-136	J-138	488.52	130.0	1,663	0.12	0.06	<None>
P-232	2.0	J-135	J-140	396.99	130.0	2,217	0.16	0.10	<None>
P-233	4.0	J-111	J-303	391.81	130.0	9,421	0.17	0.05	<None>
P-234	4.0	J-303	J-135	25.67	130.0	7,759	0.14	0.03	<None>
P-235	4.0	J-303	J-142	969.30	130.0	1,663	0.03	0.00	<None>
P-236	4.0	J-52	J-143	167.11	130.0	-19,573	0.35	0.19	<None>
P-238	4.0	J-143	J-144	1,238.89	130.0	-22,375	0.40	0.24	<None>
P-239	4.0	J-144	J-40	267.24	130.0	-25,551	0.45	0.31	<None>
P-240	6.0	J-47	J-145	111.48	130.0	55,715	0.44	0.18	<None>
P-241	6.0	J-145	J-49	290.45	130.0	54,968	0.43	0.18	<None>
P-242	4.0	J-145	J-146	206.88	130.0	747	0.01	0.00	<None>
P-243	4.0	J-38	J-147	577.51	130.0	-8,406	0.15	0.04	<None>

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-244	4.0	J-147	J-33	698.61	130.0	-16,812	0.30	0.14	<None>
P-245	4.0	J-32	J-148	801.29	130.0	-2,480	0.04	0.00	<None>
P-246	4.0	J-148	J-31	754.97	130.0	-10,138	0.18	0.06	<None>
P-247	4.0	J-31	J-149	770.29	130.0	8,643	0.15	0.04	<None>
P-248	4.0	J-149	J-32	992.50	130.0	4,720	0.08	0.01	<None>
P-249	4.0	J-37	J-150	469.08	130.0	22,704	0.40	0.25	<None>
P-250	4.0	J-150	J-34	473.99	130.0	17,100	0.30	0.15	<None>
P-251	4.0	J-30	J-151	503.81	130.0	36,429	0.65	0.59	<None>
P-252	4.0	J-151	J-10	392.35	130.0	32,507	0.58	0.48	<None>
P-253	4.0	J-9	J-152	518.48	130.0	-15,567	0.28	0.12	<None>
P-254	4.0	J-152	J-29	515.25	130.0	-20,424	0.36	0.20	<None>
P-255	4.0	J-8	J-153	489.90	130.0	-13,364	0.24	0.09	<None>
P-256	4.0	J-153	J-28	492.05	130.0	-18,408	0.33	0.17	<None>
P-257	4.0	J-7	J-154	466.51	130.0	-15,645	0.28	0.12	<None>
P-258	4.0	J-154	J-27	465.56	130.0	-20,128	0.36	0.20	<None>
P-259	4.0	J-6	J-155	455.17	130.0	-20,937	0.37	0.21	<None>
P-260	4.0	J-155	J-26	428.85	130.0	-25,233	0.45	0.30	<None>
P-261	4.0	J-5	J-156	425.62	130.0	9,534	0.17	0.05	<None>
P-262	4.0	J-156	J-25	409.33	130.0	5,238	0.09	0.02	<None>
P-263	4.0	J-4	J-157	389.51	130.0	-1,502	0.03	0.00	<None>
P-264	4.0	J-157	J-24	394.94	130.0	-5,238	0.09	0.02	<None>
P-265	4.0	J-3	J-158	353.10	130.0	-14,836	0.26	0.11	<None>
P-266	4.0	J-158	J-23	378.79	130.0	-18,572	0.33	0.17	<None>
P-267	4.0	J-2	J-159	321.08	130.0	-2,593	0.05	0.00	<None>
P-268	4.0	J-159	J-22	362.87	130.0	-5,956	0.11	0.02	<None>
P-269	4.0	J-1	J-161	301.11	130.0	-9,077	0.16	0.05	<None>
P-270	4.0	J-161	J-21	350.93	130.0	-11,506	0.20	0.07	<None>
P-271	4.0	J-81	J-162	807.09	130.0	29,363	0.52	0.40	<None>
P-272	4.0	J-162	J-59	749.02	130.0	22,264	0.39	0.24	<None>
P-273	6.0	J-62	J-163	1,078.9 9	130.0	3,788	0.03	0.00	<None>
P-274	6.0	J-163	J-60	1,316.8 9	130.0	-6,673	0.05	0.00	<None>
P-275	6.0	J-91	J-308	1,255.2 5	130.0	6,437	0.05	0.00	<None>
P-276	6.0	J-308	J-61	999.58	130.0	-4,771	0.04	0.00	<None>
P-277	6.0	J-91	J-165	1,434.9 7	130.0	4,481	0.04	0.00	<None>
P-278	6.0	J-165	J-92	891.80	130.0	-375	0.00	0.00	<None>
P-279	6.0	J-77	J-166	251.41	130.0	10,581	0.08	0.01	<None>
P-280	6.0	J-166	J-302	104.34	130.0	7,218	0.06	0.00	<None>
P-281	6.0	J-69	J-167	144.82	130.0	0	0.00	0.00	<None>
P-282	6.0	J-167	T-4	4,186.9 1	130.0	0	0.00	0.00	<None>

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-283	6.0	J-166	J-167	1,158.6 3	130.0	2,990	0.02	0.00	<None>
P-284	4.0	J-69	J-168	437.71	130.0	-171	0.00	0.00	<None>
P-285	4.0	J-168	J-70	521.41	130.0	-3,907	0.07	0.01	<None>
P-286	4.0	J-68	J-169	381.96	130.0	152	0.00	0.00	<None>
P-287	4.0	J-169	J-76	412.73	130.0	-2,650	0.05	0.00	<None>
P-288	4.0	J-76	J-170	560.28	130.0	1,756	0.03	0.00	<None>
P-289	4.0	J-170	J-67	327.96	130.0	-672	0.01	0.00	<None>
P-290	4.0	J-302	J-171	678.41	130.0	4,841	0.09	0.01	<None>
P-291	4.0	J-171	J-66	652.55	130.0	-1,884	0.03	0.00	<None>
P-292	4.0	J-72	J-172	751.63	130.0	4,395	0.08	0.01	<None>
P-293	4.0	J-172	J-64	739.38	130.0	-2,330	0.04	0.00	<None>
P-294	4.0	J-63	J-173	887.70	130.0	5,415	0.10	0.02	<None>
P-295	4.0	J-173	J-65	881.57	130.0	-2,804	0.05	0.01	<None>
P-296	4.0	J-73	J-174	1,019.0 1	130.0	15,704	0.28	0.12	<None>
P-297	4.0	J-174	J-74	1,010.1 7	130.0	11,034	0.20	0.06	<None>
P-298	4.0	J-103	J-175	1,629.4 4	130.0	1,740	0.03	0.00	<None>
P-299	4.0	J-175	J-104	1,630.0 8	130.0	-876	0.02	0.00	<None>
P-300	8.0	T-5	T-2	673.90	130.0	(N/A)	(N/A)	(N/A)	<None>
P-301	10.0	J-176	J-177	38.97	130.0	36,904	0.10	0.01	<None>
P-302	10.0	J-177	J-178	487.41	130.0	36,904	0.10	0.01	<None>
P-303	10.0	J-178	J-179	1,731.8 5	130.0	19,249	0.05	0.00	<None>
P-304	10.0	J-179	J-180	973.24	130.0	11,628	0.03	0.00	<None>
P-305	10.0	J-180	J-181	976.07	130.0	3,284	0.01	0.00	<None>
P-306	8.0	J-181	J-182	205.59	130.0	3,284	0.01	0.00	<None>
P-307	8.0	J-182	J-183	740.53	130.0	1,899	0.01	0.00	<None>
P-308	8.0	J-183	J-184	265.13	130.0	109	0.00	0.00	<None>
P-309	8.0	J-184	J-185	217.36	130.0	923	0.00	0.00	<None>
P-310	8.0	J-184	J-186	577.62	130.0	-3,055	0.01	0.00	<None>
P-311	8.0	J-186	J-187	795.82	130.0	(N/A)	(N/A)	(N/A)	<None>
P-312	8.0	J-183	J-188	260.74	130.0	-582	0.00	0.00	<None>
P-313	8.0	J-188	J-189	288.84	130.0	58	0.00	0.00	<None>
P-314	8.0	J-189	J-190	167.37	130.0	923	0.00	0.00	<None>
P-315	8.0	J-189	J-191	333.63	130.0	-2,183	0.01	0.00	<None>
P-317	8.0	J-191	J-192	251.02	130.0	405	0.00	0.00	<None>
P-318	8.0	J-192	J-188	312.01	130.0	2,221	0.01	0.00	<None>
P-319	8.0	J-192	J-193	337.70	130.0	-3,002	0.01	0.00	<None>
P-320	8.0	J-193	J-186	260.53	130.0	-1,443	0.01	0.00	<None>
P-321	8.0	J-191	J-194	228.52	130.0	-3,116	0.01	0.00	<None>
P-322	8.0	J-194	J-180	177.54	130.0	-5,289	0.02	0.00	<None>

Willow Valley Water Company
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Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-325	8.0	J-193	J-196	412.01	130.0	-1,954	0.01	0.00	<None>
P-326	8.0	J-196	J-197	255.05	130.0	-3,009	0.01	0.00	<None>
P-327	8.0	J-197	J-305	911.31	130.0	-6,831	0.03	0.00	<None>
P-328	8.0	J-305	J-186	1,018.53	130.0	6,738	0.03	0.00	<None>
P-329	8.0	J-305	J-199	281.64	130.0	-14,096	0.06	0.00	<None>
P-330	8.0	J-199	J-200	411.02	130.0	-15,810	0.07	0.00	<None>
P-331	8.0	J-200	J-178	158.43	130.0	-17,655	0.08	0.01	<None>
P-332	8.0	J-200	J-304	369.86	130.0	1,582	0.01	0.00	<None>
P-334	8.0	J-202	J-180	307.43	130.0	-3,055	0.01	0.00	<None>
P-335	8.0	J-202	J-203	1,667.95	130.0	5,931	0.03	0.00	<None>
P-336	6.0	J-204	J-199	252.77	130.0	-923	0.01	0.00	<None>
P-337	6.0	J-205	J-197	202.12	130.0	-791	0.01	0.00	<None>
P-338	6.0	J-197	J-206	261.32	130.0	791	0.01	0.00	<None>
P-339	6.0	J-196	J-207	149.99	130.0	527	0.00	0.00	<None>
P-340	8.0	J-179	J-306	608.72	130.0	7,621	0.03	0.00	<None>
P-341	8.0	J-306	J-202	642.23	130.0	3,667	0.02	0.00	<None>
P-342	8.0	J-182	J-209	423.45	130.0	990	0.00	0.00	<None>
P-343	8.0	J-209	J-194	414.14	130.0	-1,910	0.01	0.00	<None>
P-344	6.0	R-3	PMP-10	34.84	130.0	(N/A)	(N/A)	(N/A)	<None>
P-346	8.0	PMP-10	J-210	297.73	130.0	(N/A)	(N/A)	(N/A)	<None>
P-350	8.0	J-212	J-213	1.48	130.0	0	0.00	0.00	<None>
P-351	8.0	J-213	J-214	1.65	130.0	0	0.00	0.00	<None>
P-352	4.0	J-214	PMP-CD4	2.64	130.0	(N/A)	(N/A)	(N/A)	<None>
P-353	4.0	PMP-CD4	J-211	2.69	130.0	(N/A)	(N/A)	(N/A)	<None>
P-354	6.0	J-211	J-215	1.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-355	6.0	J-215	J-216	1.85	130.0	(N/A)	(N/A)	(N/A)	<None>
P-356	6.0	J-216	J-217	1.61	130.0	(N/A)	(N/A)	(N/A)	<None>
P-358	4.0	J-213	PMP-CD3	2.25	130.0	(N/A)	(N/A)	(N/A)	<None>
P-359	4.0	PMP-CD3	J-215	2.81	130.0	(N/A)	(N/A)	(N/A)	<None>
P-360	4.0	J-212	PMP-CD2	2.23	130.0	(N/A)	(N/A)	(N/A)	<None>
P-361	4.0	PMP-CD2	J-216	2.43	130.0	(N/A)	(N/A)	(N/A)	<None>
P-363	4.0	PMP-CD1	J-217	2.41	130.0	-1	0.00	0.00	<None>
P-364	12.0	R-4	PMP-CW1	10.00	130.0	720,174	1.42	0.70	<None>
P-366	8.0	J-210	J-218	6.49	130.0	720,174	3.19	5.06	<None>
P-368	8.0	J-218	J-217	5.95	130.0	(N/A)	(N/A)	(N/A)	<None>
P-370	4.0	J-218	J-219	97.39	130.0	720,174	12.77	148.13	<None>
P-372	8.0	J-219	J-214	6.98	130.0	1	0.00	0.00	<None>
P-373	8.0	T-6	J-219	9.35	130.0	720,173	3.19	5.06	<None>
P-374	8.0	J-217	HT-4	17.07	130.0	-1	0.00	0.00	<None>
P-375	10.0	HT-4	J-176	36.19	130.0	36,904	0.10	0.01	<None>
P-376	8.0	J-212	J-220	1.74	130.0	-1	0.00	0.00	<None>

Willow Valley Water Company
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Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-377	4.0	J-220	PMP-CD1	2.28	130.0	-1	0.00	0.00	<None>
P-381	6.0	PMP-7	J-222	60.00	130.0	0	0.00	0.00	<None>
P-382	6.0	J-222	J-127	10.38	130.0	0	0.00	0.00	<None>
P-384	6.0	J-222	PSV-1	15.27	130.0	0	0.00	0.00	<None>
P-385	6.0	PSV-1	T-3	109.21	130.0	0	0.00	0.00	<None>
P-386	12.0	PMP-CW1	PSV-2	63.00	130.0	720,174	1.42	0.70	<None>
P-387	12.0	PSV-2	J-210	0.97	130.0	720,174	1.42	0.72	<None>
P-394	6.0	J-111	J-230	892.79	130.0	25,592	0.20	0.04	<None>
P-395	6.0	J-230	J-109	656.24	130.0	1	0.00	0.00	<None>
P-396	6.0	J-105	J-230	419.65	130.0	-25,592	0.20	0.04	<None>

Willow Valley Water Company

Active Scenario: ADD

Hydropneumatic Tank FlexTable: Hydropneumatic Tank (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Volume (Tank) (gal)	Pressure (Calculated) (psi)	Liquid Volume (Calculated) (gal)
HT-1	603.00	5,000.0	50.2	2,500.0
HT-2	612.00	5,216.0	56.7	2,000.0
HT-3	645.00	13,985.0	72.3	2,030.0
HT-4	599.00	5,814.0	54.9	2,500.0

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Pump Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Status (Calculated)	Flow (Total) (gpd)	Head (Maximum Operating) (ft)	Hydraulic Grade (Discharge) (ft)	Hydraulic Grade (Suction) (ft)	Pressure (Discharge) (psi)	Pressure (Suction) (psi)
PMP-1	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-2	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-3	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-4	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-5	Off	0	0.00	611.31	501.10	57.5	9.8
PMP-6	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-7	Off	0	(N/A)	501.10	463.00	36.0	19.5
PMP-8	On	364,105	(N/A)	645.78	495.02	73.4	8.2
PMP-9	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-10	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD1	Off	0	(N/A)	599.00	485.05	55.8	6.4
PMP-CD2	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD3	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD4	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CW1	On	720,174	(N/A)	528.92	454.99	52.7	20.8

Willow Valley Water Company

Active Scenario: ADD

FlexTable: Reservoir Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Flow (Out net) (gpd)
R-1	(N/A)	(N/A)
R-2	463.00	-1
R-3	(N/A)	(N/A)
R-4	455.00	720,174

Willow Valley Water Company
Active Scenario: ADD
FlexTable: Tank Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Diameter (ft)	Level (Maximum) (ft)	Volume (Calculated) (gal)	Level (Calculated) (ft)	Elevation (Base) (ft)	Hydraulic Grade (ft)
T-2	34.20	16.00	(N/A)	(N/A)	487.00	(N/A)
T-3	34.00	24.00	150,095.80	22.10	479.00	501.10
T-4	20.00	20.00	44,650.31	19.00	476.05	495.05
T-5	34.00	16.00	(N/A)	(N/A)	487.00	(N/A)
T-6	45.00	16.50	59,483.76	5.00	480.00	485.00

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-1	479.99	602.35	52.9	0	Unit 17
J-2	479.99	602.34	52.9	0	Unit 17
J-3	479.33	602.33	53.2	0	Unit 17
J-4	479.00	602.31	53.4	0	Unit 17
J-5	479.00	602.31	53.4	0	Unit 17
J-6	478.35	602.31	53.6	0	Unit 17
J-7	478.35	602.31	53.6	0	Unit 17
J-8	477.69	602.31	53.9	0	Unit 17
J-9	477.69	602.32	53.9	0	Unit 17
J-10	476.70	602.32	54.3	0	Unit 17
J-12	476.70	602.23	54.3	11,208	Unit 17
J-13	477.69	602.23	53.9	10,834	Unit 17
J-14	478.35	602.23	53.6	11,955	Unit 17
J-15	479.33	602.25	53.2	10,834	Unit 17
J-16	479.99	602.25	52.9	11,208	Unit 17
J-17	479.99	602.26	52.9	10,834	Unit 17
J-18	479.99	602.28	52.9	10,087	Unit 17
J-19	480.64	602.34	52.7	10,461	Unit 17
J-20	480.64	602.35	52.7	7,098	Unit 17
J-21	479.33	602.36	53.2	0	Unit 17
J-22	479.33	602.35	53.2	0	Unit 17
J-23	479.33	602.40	53.2	0	Unit 17
J-24	479.33	602.30	53.2	0	Unit 17
J-25	479.33	602.30	53.2	0	Unit 17
J-26	479.33	602.48	53.3	0	Unit 17
J-27	479.00	602.42	53.4	0	Unit 17
J-28	478.35	602.41	53.7	0	Unit 17
J-29	478.35	602.44	53.7	0	Unit 17
J-30	476.70	602.67	54.5	1,868	Unit 17
J-31	480.97	602.52	52.6	0	Unit 17
J-32	483.27	602.69	51.7	0	Unit 17
J-33	479.99	602.82	53.1	0	Unit 17
J-34	479.99	602.58	53.0	0	Unit 17
J-36	479.99	602.44	53.0	5,978	Unit 17
J-37	479.99	602.39	53.0	0	Unit 17
J-38	479.99	602.38	53.0	16,812	Unit 17
J-40	479.99	602.40	53.0	8,219	Unit 17
J-41	479.33	602.40	53.2	0	Unit 17
J-42	479.99	602.39	53.0	11,208	Unit 17
J-43	479.33	602.40	53.2	0	Unit 17
J-44	479.99	602.39	53.0	0	Unit 17
J-45	477.36	603.04	54.4	0	Unit 17
J-46	479.33	602.53	53.3	2,989	Unit 17
J-47	479.33	602.42	53.3	5,604	Unit 17
J-48	479.99	602.40	53.0	1,868	Unit 17
J-49	479.33	602.40	53.2	2,615	Unit 17

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-50	484.91	602.83	51.0	1,121	Unit 17
J-52	479.99	602.82	53.1	1,494	Unit 17
J-53	479.99	602.83	53.1	1,494	Unit 17
J-54	481.63	602.83	52.4	6,351	Unit 17
J-55	479.99	602.85	53.2	0	Unit 17
J-57	479.33	606.12	54.9	0	Unit 17
J-58	475.06	604.12	55.8	6,725	Unit 17
J-59	475.06	603.85	55.7	0	Unit 17
J-60	475.06	603.28	55.5	0	Unit 17
J-61	479.00	603.21	53.7	0	Unit 17
J-62	479.33	603.21	53.6	0	Unit 17
J-63	479.33	603.22	53.6	0	Unit 17
J-64	479.33	603.14	53.6	0	Unit 17
J-65	479.99	603.16	53.3	0	Unit 17
J-66	479.33	603.13	53.6	2,242	Unit 17
J-67	479.33	603.13	53.6	0	Unit 17
J-68	479.33	603.12	53.6	4,483	Unit 17
J-69	479.33	603.12	53.6	0	Unit 17
J-70	476.05	603.15	55.0	0	Unit 17
J-72	479.99	603.18	53.3	0	Unit 17
J-73	479.00	603.59	53.9	0	Unit 17
J-74	479.99	603.19	53.3	0	Unit 17
J-76	476.70	603.13	54.7	0	Unit 17
J-77	479.99	603.19	53.3	2,615	Unit 17
J-78	479.99	603.20	53.3	5,604	Unit 17
J-79	479.00	603.95	54.1	0	Unit 17
J-80	478.35	604.22	54.5	0	Unit 17
J-81	479.00	604.28	54.2	0	Unit 17
J-82	479.33	604.26	54.1	8,966	Unit 17
J-83	479.99	604.48	53.9	8,593	Unit 17
J-84	479.00	604.26	54.2	3,736	Unit 17
J-86	479.00	604.39	54.3	0	Unit 17
J-87	479.33	604.86	54.3	9,340	Unit 17
J-88	479.00	607.76	55.7	0	Unit 17
J-90	476.05	603.47	55.1	3,736	Unit 17
J-91	475.06	603.24	55.5	0	Unit 17
J-92	478.35	603.21	54.0	0	Unit 17
J-93	479.99	603.21	53.3	4,110	Unit 17
J-95	475.72	644.19	72.9	0	Unit 17
J-97	475.72	644.02	72.8	0	Unit 17
J-98	475.06	643.98	73.1	0	Unit 17
J-99	475.06	643.94	73.1	10,461	Unit 17
J-100	475.06	643.94	73.1	10,461	Unit 17
J-101	475.06	643.95	73.1	9,714	Unit 17
J-102	475.72	644.16	72.9	5,230	Unit 17
J-103	475.06	643.95	73.1	1,494	Unit 17

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-104	474.41	643.94	73.3	5,604	Unit 17
J-105	475.06	645.23	73.6	0	Unit 17
J-106	475.06	645.23	73.6	747	Unit 17
J-107	473.42	644.52	74.0	747	Unit 17
J-108	476.05	644.52	72.9	1,494	Unit 17
J-109	476.05	645.29	73.2	0	Unit 17
J-110	476.05	645.57	73.3	0	Unit 17
J-111	476.05	645.43	73.3	6,650	Unit 17
J-115	479.99	602.38	53.0	0	Unit 17
J-116	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-117	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-118	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-119	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-120	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-121	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-124	478.35	501.10	9.8	0	Transmission
J-125	478.35	610.99	57.4	0	Unit 17
J-126	478.35	610.70	57.3	0	Unit 17
J-127	478.35	611.05	57.4	0	Unit 17
J-128	478.35	610.99	57.4	0	Unit 17
J-129	476.05	495.03	8.2	0	Transmission
J-130	476.05	645.51	73.3	0	Unit 17
J-135	476.05	645.36	73.3	0	Unit 17
J-136	476.70	645.32	73.0	4,434	Unit 17
J-137	476.70	645.32	73.0	3,325	Unit 17
J-138	478.35	645.22	72.2	3,325	Unit 17
J-140	475.72	645.22	73.3	4,434	Unit 17
J-142	476.70	645.35	73.0	3,325	Unit 17
J-143	479.99	602.75	53.1	5,604	Unit 17
J-144	479.99	602.44	53.0	6,351	Unit 17
J-145	479.33	602.42	53.3	0	Unit 17
J-146	479.99	602.41	53.0	1,494	Unit 17
J-147	479.99	602.46	53.0	16,812	Unit 17
J-148	480.64	602.53	52.7	15,318	Unit 17
J-149	475.06	602.55	55.2	7,846	Unit 17
J-150	479.99	602.44	53.0	11,208	Unit 17
J-151	476.70	602.43	54.4	7,846	Unit 17
J-152	477.36	602.34	54.1	9,714	Unit 17
J-153	477.69	602.33	53.9	10,087	Unit 17
J-154	478.35	602.34	53.6	8,966	Unit 17
J-155	478.35	602.36	53.7	8,593	Unit 17
J-156	479.00	602.30	53.3	8,593	Unit 17
J-157	479.00	602.30	53.3	7,472	Unit 17
J-158	479.33	602.34	53.2	7,472	Unit 17
J-159	479.33	602.34	53.2	6,725	Unit 17
J-161	479.33	602.35	53.2	4,857	Unit 17

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-162	477.69	603.94	54.6	14,197	Unit 17
J-163	478.35	603.21	54.0	20,922	Unit 17
J-165	477.36	603.21	54.4	9,714	Unit 17
J-166	479.33	603.17	53.6	747	Unit 17
J-167	479.33	603.17	53.6	5,978	Unit 17
J-168	479.33	603.13	53.6	7,472	Unit 17
J-169	479.99	603.12	53.3	5,604	Unit 17
J-170	479.99	603.13	53.3	4,857	Unit 17
J-171	479.00	603.13	53.7	13,450	Unit 17
J-172	479.99	603.14	53.3	13,450	Unit 17
J-173	479.33	603.15	53.6	16,438	Unit 17
J-174	479.99	603.30	53.4	9,340	Unit 17
J-175	471.13	643.93	74.8	5,230	Unit 17
J-176	470.14	599.00	55.7	0	Cimarron
J-177	470.14	599.00	55.7	0	Cimarron
J-178	474.41	598.99	53.9	0	Cimarron
J-179	475.72	598.97	53.3	0	Cimarron
J-180	476.05	598.97	53.2	0	Cimarron
J-181	475.06	598.97	53.6	0	Cimarron
J-182	475.06	598.97	53.6	791	Cimarron
J-183	470.14	598.97	55.7	4,745	Cimarron
J-184	470.14	598.97	55.7	4,481	Cimarron
J-185	470.80	598.97	55.5	1,845	Cimarron
J-186	470.80	598.97	55.5	4,481	Cimarron
J-187	474.08	(N/A)	(N/A)	(N/A)	Cimarron
J-188	472.77	598.97	54.6	3,163	Cimarron
J-189	466.86	598.97	57.2	2,636	Cimarron
J-190	475.06	598.97	53.6	1,845	Cimarron
J-191	475.06	598.97	53.6	1,054	Cimarron
J-192	468.50	598.97	56.4	2,372	Cimarron
J-193	470.14	598.97	55.7	791	Cimarron
J-194	475.06	598.97	53.6	527	Cimarron
J-196	468.50	598.97	56.4	1,054	Cimarron
J-197	469.49	598.97	56.0	4,481	Cimarron
J-199	470.80	598.98	55.5	1,582	Cimarron
J-200	472.77	598.98	54.6	527	Cimarron
J-202	477.69	598.97	52.5	1,582	Cimarron
J-203	479.33	598.97	51.8	11,862	Cimarron
J-204	472.77	598.98	54.6	1,845	Cimarron
J-205	466.86	598.97	57.2	1,582	Cimarron
J-206	470.14	598.97	55.7	1,582	Cimarron
J-207	469.49	598.97	56.0	1,054	Cimarron
J-209	475.72	598.97	53.3	5,799	Cimarron
J-210	470.14	499.51	12.7	0	Transmission
J-211	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-212	470.14	485.05	6.4	0	Transmission

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-213	470.14	485.05	6.4	0	Transmission
J-214	470.14	485.05	6.4	0	Transmission
J-215	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-216	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-217	470.14	599.00	55.8	0	Cimarron
J-218	470.14	499.47	12.7	0	Transmission
J-219	470.14	485.05	6.4	0	Transmission
J-220	470.14	485.05	6.4	0	Transmission
J-222	478.35	501.10	9.8	0	Transmission
J-230	475.00	645.29	73.7	0	<None>
J-301	491.47	602.83	48.2	4,110	Unit 17
J-302	477.69	603.17	54.3	0	Unit 17
J-303	476.05	645.36	73.3	0	Unit 17
J-304	471.13	598.98	55.3	3,163	Cimarron
J-305	470.14	598.97	55.7	1,054	Cimarron
J-306	476.70	598.97	52.9	7,908	Cimarron
J-307	476.70	602.23	54.3	14,570	Unit 17
J-308	477.69	603.21	54.3	22,416	Unit 17
J-309	475.06	644.11	73.1	0	Unit 17

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-1	6.0	J-1	J-2	189.92	130.0	29,483	0.23	0.06	<None>
P-2	6.0	J-2	J-3	228.21	130.0	30,228	0.24	0.06	<None>
P-3	6.0	J-3	J-4	228.97	130.0	29,578	0.23	0.06	<None>
P-4	6.0	J-4	J-5	233.62	130.0	10,344	0.08	0.01	<None>
P-5	6.0	J-5	J-6	244.30	130.0	-8,530	0.07	0.01	<None>
P-6	6.0	J-6	J-7	240.39	130.0	-4,448	0.04	0.00	<None>
P-7	6.0	J-7	J-8	250.01	130.0	-7,125	0.06	0.00	<None>
P-8	6.0	J-8	J-9	257.23	130.0	-10,929	0.09	0.01	<None>
P-9	6.0	J-9	J-10	253.65	130.0	-12,799	0.10	0.01	<None>
P-10	4.0	J-10	J-307	1,203.1 1	130.0	11,961	0.21	0.07	<None>
P-11	4.0	J-307	J-12	262.39	130.0	-2,609	0.05	0.00	<None>
P-12	4.0	J-12	J-13	258.91	130.0	-1,803	0.03	0.00	<None>
P-13	4.0	J-13	J-14	256.57	130.0	-489	0.01	0.00	<None>
P-19	4.0	J-19	J-20	191.40	130.0	-9,186	0.16	0.05	<None>
P-20	4.0	J-20	J-1	705.52	130.0	-2,345	0.04	0.00	<None>
P-21	4.0	J-19	J-2	746.50	130.0	-1,275	0.02	0.00	<None>
P-22	4.0	J-18	J-3	793.44	130.0	-10,087	0.18	0.05	<None>
P-23	4.0	J-17	J-4	841.28	130.0	-10,834	0.19	0.06	<None>
P-24	4.0	J-5	J-16	896.58	130.0	11,208	0.20	0.07	<None>
P-25	4.0	J-15	J-6	955.53	130.0	-10,834	0.19	0.06	<None>
P-26	4.0	J-7	J-14	1,018.0 8	130.0	12,445	0.22	0.08	<None>
P-27	4.0	J-13	J-8	1,078.1 4	130.0	-12,148	0.22	0.08	<None>
P-28	4.0	J-12	J-9	1,138.2 6	130.0	-12,014	0.21	0.08	<None>
P-30	4.0	J-21	J-22	194.15	130.0	8,745	0.16	0.04	<None>
P-33	4.0	J-24	J-25	237.98	130.0	927	0.02	0.00	<None>
P-35	4.0	J-26	J-27	246.80	130.0	22,411	0.40	0.24	<None>
P-36	4.0	J-27	J-28	252.46	130.0	3,677	0.07	0.01	<None>
P-37	4.0	J-28	J-29	259.01	130.0	-14,755	0.26	0.11	<None>
P-38	4.0	J-29	J-30	430.12	130.0	-34,612	0.61	0.54	<None>
P-50	3.0	J-31	J-20	432.69	130.0	13,939	0.44	0.40	<None>
P-52	4.0	J-33	J-34	259.17	130.0	46,026	0.82	0.91	<None>
P-57	4.0	J-34	J-36	719.89	130.0	20,609	0.37	0.21	<None>
P-64	4.0	J-41	J-40	899.10	130.0	-180	0.00	0.00	<None>
P-65	4.0	J-40	J-42	220.23	130.0	8,486	0.15	0.04	<None>
P-67	4.0	J-42	J-41	637.59	130.0	-4,772	0.08	0.01	<None>
P-69	4.0	J-43	J-41	101.42	130.0	4,592	0.08	0.01	<None>
P-70	4.0	J-42	J-44	813.81	130.0	2,050	0.04	0.00	<None>
P-71	4.0	J-44	J-43	114.60	130.0	-14,539	0.26	0.11	<None>
P-72	4.0	J-44	J-21	187.91	130.0	16,589	0.29	0.14	<None>
P-73	4.0	J-30	J-45	190.20	130.0	-69,086	1.22	1.93	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-76	4.0	J-26	J-46	64.40	130.0	-45,919	0.81	0.91	<None>
P-77	6.0	J-46	J-47	847.98	130.0	47,622	0.38	0.13	<None>
P-79	4.0	J-23	J-47	167.65	130.0	-16,909	0.30	0.14	<None>
P-81	6.0	J-49	J-43	160.17	130.0	19,131	0.15	0.02	<None>
P-82	4.0	J-48	J-49	274.03	130.0	-1,868	0.03	0.00	<None>
P-83	4.0	J-33	J-52	298.01	130.0	11	0.00	0.00	<None>
P-86	8.0	J-50	J-53	599.97	130.0	-1,121	0.00	0.00	<None>
P-87	8.0	J-53	J-52	547.30	130.0	30,324	0.13	0.01	<None>
P-88	8.0	J-53	J-54	282.98	130.0	-32,939	0.15	0.02	<None>
P-89	4.0	J-32	J-55	261.54	130.0	-37,103	0.66	0.61	<None>
P-91	8.0	J-54	J-55	762.08	130.0	-43,400	0.19	0.03	<None>
P-92	8.0	J-54	J-301	415.19	130.0	4,110	0.02	0.00	<None>
P-94	4.0	J-58	J-59	250.14	130.0	51,027	0.90	1.10	<None>
P-95	4.0	J-59	J-60	314.91	130.0	66,884	1.19	1.82	<None>
P-97	6.0	J-61	J-62	300.47	130.0	-3,039	0.02	0.00	<None>
P-98	6.0	J-62	J-63	332.81	130.0	-27,250	0.21	0.05	<None>
P-101	4.0	J-65	J-64	262.03	130.0	11,165	0.20	0.07	<None>
P-102	4.0	J-64	J-66	353.49	130.0	8,101	0.14	0.04	<None>
P-103	4.0	J-66	J-67	266.83	130.0	3,578	0.06	0.01	<None>
P-104	4.0	J-67	J-68	242.81	130.0	3,113	0.06	0.01	<None>
P-105	4.0	J-68	J-69	254.80	130.0	-1,210	0.02	0.00	<None>
P-107	4.0	J-70	J-302	137.01	130.0	-18,838	0.33	0.17	<None>
P-108	4.0	J-302	J-72	262.18	130.0	-7,978	0.14	0.04	<None>
P-109	4.0	J-72	J-63	254.02	130.0	-18,364	0.33	0.17	<None>
P-110	4.0	J-63	J-73	264.11	130.0	-58,113	1.03	1.40	<None>
P-112	4.0	J-74	J-65	259.32	130.0	15,104	0.27	0.12	<None>
P-117	4.0	J-70	J-76	258.65	130.0	10,157	0.18	0.06	<None>
P-120	6.0	J-77	J-62	304.17	130.0	-31,369	0.25	0.06	<None>
P-121	6.0	J-78	J-61	558.25	130.0	-5,604	0.04	0.00	<None>
P-123	4.0	J-73	J-79	133.72	130.0	-82,557	1.46	2.68	<None>
P-124	4.0	J-79	J-80	244.79	130.0	-51,241	0.91	1.11	<None>
P-125	4.0	J-80	J-81	247.36	130.0	-21,477	0.38	0.22	<None>
P-127	4.0	J-79	J-82	700.56	130.0	-31,316	0.56	0.45	<None>
P-128	4.0	J-82	J-83	311.58	130.0	-39,576	0.70	0.69	<None>
P-129	4.0	J-83	J-57	1,664.15	130.0	-48,169	0.85	0.99	<None>
P-130	4.0	J-80	J-84	100.99	130.0	-29,764	0.53	0.41	<None>
P-132	4.0	J-84	J-82	727.10	130.0	707	0.01	0.00	<None>
P-133	4.0	J-84	J-86	245.38	130.0	-34,207	0.61	0.52	<None>
P-134	4.0	J-86	J-81	102.52	130.0	51,530	0.91	1.12	<None>
P-135	4.0	J-86	J-87	162.84	130.0	-85,737	1.52	2.88	<None>
P-136	4.0	J-87	J-88	831.59	130.0	-95,077	1.69	3.48	<None>
P-137	4.0	J-88	J-57	242.85	130.0	135,689	2.41	6.73	<None>
P-140	4.0	J-57	J-90	886.68	130.0	87,520	1.55	2.99	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-141	4.0	J-90	J-58	246.95	130.0	-81,833	1.45	2.64	<None>
P-142	6.0	J-45	J-46	1,018.67	130.0	96,530	0.76	0.50	<None>
P-143	6.0	J-45	J-90	319.84	130.0	165,617	1.31	1.35	<None>
P-144	6.0	J-45	T-3	1,382.73	130.0	0	0.00	0.00	<None>
P-145	6.0	J-60	J-91	376.43	130.0	38,804	0.31	0.09	<None>
P-148	6.0	J-92	J-61	289.82	130.0	4,076	0.03	0.00	<None>
P-149	6.0	J-92	J-93	816.33	130.0	4,110	0.03	0.00	<None>
P-151	4.0	J-95	J-309	91.17	130.0	42,964	0.76	0.80	<None>
P-152	4.0	J-309	J-97	290.60	130.0	27,096	0.48	0.34	<None>
P-153	4.0	J-97	J-98	256.40	130.0	17,035	0.30	0.14	<None>
P-155	4.0	J-99	J-100	256.47	130.0	-5,755	0.10	0.02	<None>
P-156	4.0	J-100	J-101	296.34	130.0	-6,155	0.11	0.02	<None>
P-157	4.0	J-101	J-309	1,287.78	130.0	-15,868	0.28	0.13	<None>
P-158	4.0	J-97	J-100	1,293.49	130.0	10,061	0.18	0.05	<None>
P-159	4.0	J-99	J-98	1,299.39	130.0	-7,230	0.13	0.03	<None>
P-160	4.0	J-95	J-102	1,498.64	130.0	5,230	0.09	0.02	<None>
P-161	4.0	J-98	J-103	621.12	130.0	9,805	0.17	0.05	<None>
P-163	4.0	J-103	J-104	638.16	130.0	4,831	0.09	0.01	<None>
P-164	4.0	J-104	J-99	666.67	130.0	-2,524	0.04	0.00	<None>
P-167	4.0	J-105	J-106	843.42	130.0	747	0.01	0.00	<None>
P-168	4.0	J-95	J-108	336.23	130.0	-48,194	0.85	0.99	<None>
P-169	4.0	J-108	J-105	655.48	130.0	-50,436	0.89	1.08	<None>
P-170	4.0	J-107	J-108	1,532.81	130.0	-747	0.01	0.00	<None>
P-176	4.0	J-36	J-115	524.43	130.0	14,631	0.26	0.11	<None>
P-177	4.0	J-115	J-1	77.43	130.0	28,841	0.51	0.38	<None>
P-178	4.0	J-37	J-115	126.32	130.0	14,209	0.25	0.10	<None>
P-179	6.0	J-33	J-55	97.06	130.0	-79,661	0.63	0.35	<None>
P-181	8.0	J-116	J-117	9.05	130.0	(N/A)	(N/A)	(N/A)	<None>
P-182	8.0	J-117	PMP-2	7.33	130.0	(N/A)	(N/A)	(N/A)	<None>
P-184	8.0	J-118	J-119	8.27	130.0	(N/A)	(N/A)	(N/A)	<None>
P-185	8.0	J-119	PMP-4	8.45	130.0	(N/A)	(N/A)	(N/A)	<None>
P-186	8.0	J-116	PMP-3	8.42	130.0	(N/A)	(N/A)	(N/A)	<None>
P-187	8.0	PMP-3	J-118	8.65	130.0	(N/A)	(N/A)	(N/A)	<None>
P-189	8.0	PMP-2	J-120	9.75	130.0	(N/A)	(N/A)	(N/A)	<None>
P-190	8.0	J-120	J-118	9.19	130.0	(N/A)	(N/A)	(N/A)	<None>
P-191	8.0	J-116	J-121	8.34	130.0	(N/A)	(N/A)	(N/A)	<None>
P-194	8.0	PMP-4	J-121	8.57	130.0	(N/A)	(N/A)	(N/A)	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-195	8.0	J-117	J-55	10.66	130.0	(N/A)	(N/A)	(N/A)	<None>
P-196	4.0	J-55	HT-1	16.10	130.0	160,163	2.84	9.15	<None>
P-197	6.0	R-1	PMP-1	15.86	130.0	(N/A)	(N/A)	(N/A)	<None>
P-199	6.0	PMP-1	T-2	43.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-200	8.0	T-2	J-119	16.34	130.0	(N/A)	(N/A)	(N/A)	<None>
P-201	8.0	T-3	J-124	38.87	130.0	0	0.00	0.00	<None>
P-202	8.0	J-124	PMP-6	32.00	130.0	(N/A)	(N/A)	(N/A)	<None>
P-203	6.0	PMP-6	J-125	10.40	130.0	(N/A)	(N/A)	(N/A)	<None>
P-204	6.0	J-125	PMP-5	28.05	130.0	1	0.00	0.00	<None>
P-205	8.0	PMP-5	J-124	14.02	130.0	1	0.00	0.00	<None>
P-206	4.0	J-88	J-126	163.27	130.0	230,765	4.09	18.00	<None>
P-207	4.0	J-126	J-58	926.34	130.0	139,585	2.47	7.09	<None>
P-209	6.0	R-2	PMP-7	10.69	130.0	-1	0.00	0.00	<None>
P-211	6.0	J-125	J-128	22.08	130.0	-1	0.00	0.00	<None>
P-212	6.0	J-128	J-126	49.06	130.0	370,350	2.92	6.00	<None>
P-213	6.0	J-127	J-128	10.76	130.0	370,351	2.92	6.00	<None>
P-214	4.0	J-127	HT-2	21.87	130.0	-	6.57	43.23	<None>
P-215	8.0	T-4	J-129	13.66	130.0	364,807	1.62	1.44	<None>
P-216	8.0	J-129	PMP-9	13.78	130.0	(N/A)	(N/A)	(N/A)	<None>
P-217	6.0	PMP-9	J-110	5.87	130.0	(N/A)	(N/A)	(N/A)	<None>
P-218	8.0	J-129	PMP-8	5.69	130.0	364,807	1.62	1.44	<None>
P-219	6.0	PMP-8	J-110	14.20	130.0	364,807	2.87	5.83	<None>
P-220	6.0	J-110	J-130	10.13	130.0	364,807	2.87	5.83	<None>
P-221	6.0	J-130	J-111	244.87	130.0	76,677	0.60	0.32	<None>
P-222	4.0	HT-3	J-130	18.66	130.0	-	5.11	27.15	<None>
P-229	4.0	J-135	J-136	496.25	130.0	11,084	0.20	0.07	<None>
P-230	4.0	J-136	J-137	186.52	130.0	3,325	0.06	0.01	<None>
P-231	2.0	J-136	J-138	488.52	130.0	3,325	0.24	0.20	<None>
P-232	2.0	J-135	J-140	396.99	130.0	4,434	0.31	0.35	<None>
P-233	4.0	J-111	J-303	391.81	130.0	18,843	0.33	0.17	<None>
P-234	4.0	J-303	J-135	25.67	130.0	15,518	0.28	0.12	<None>
P-235	4.0	J-303	J-142	969.30	130.0	3,325	0.06	0.01	<None>
P-236	4.0	J-52	J-143	167.11	130.0	28,840	0.51	0.38	<None>
P-238	4.0	J-143	J-144	1,238.89	130.0	23,236	0.41	0.26	<None>
P-239	4.0	J-144	J-40	267.24	130.0	16,885	0.30	0.14	<None>
P-240	6.0	J-47	J-145	111.48	130.0	25,109	0.20	0.04	<None>
P-241	6.0	J-145	J-49	290.45	130.0	23,614	0.19	0.04	<None>
P-242	4.0	J-145	J-146	206.88	130.0	1,494	0.03	0.00	<None>
P-243	4.0	J-38	J-147	577.51	130.0	-16,812	0.30	0.14	<None>
P-244	4.0	J-147	J-33	698.61	130.0	-33,624	0.60	0.51	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-245	4.0	J-32	J-148	801.29	130.0	20,355	0.36	0.20	<None>
P-246	4.0	J-148	J-31	754.97	130.0	5,037	0.09	0.02	<None>
P-247	4.0	J-31	J-149	770.29	130.0	-8,902	0.16	0.04	<None>
P-248	4.0	J-149	J-32	992.50	130.0	-16,748	0.30	0.14	<None>
P-249	4.0	J-37	J-150	469.08	130.0	-14,209	0.25	0.10	<None>
P-250	4.0	J-150	J-34	473.99	130.0	-25,417	0.45	0.30	<None>
P-251	4.0	J-30	J-151	503.81	130.0	32,606	0.58	0.48	<None>
P-252	4.0	J-151	J-10	392.35	130.0	24,760	0.44	0.29	<None>
P-253	4.0	J-9	J-152	518.48	130.0	-10,143	0.18	0.06	<None>
P-254	4.0	J-152	J-29	515.25	130.0	-19,857	0.35	0.19	<None>
P-255	4.0	J-8	J-153	489.90	130.0	-8,345	0.15	0.04	<None>
P-256	4.0	J-153	J-28	492.05	130.0	-18,432	0.33	0.17	<None>
P-257	4.0	J-7	J-154	466.51	130.0	-9,767	0.17	0.05	<None>
P-258	4.0	J-154	J-27	465.56	130.0	-18,734	0.33	0.17	<None>
P-259	4.0	J-6	J-155	455.17	130.0	-14,916	0.26	0.11	<None>
P-260	4.0	J-155	J-26	428.85	130.0	-23,509	0.42	0.26	<None>
P-261	4.0	J-5	J-156	425.62	130.0	7,666	0.14	0.03	<None>
P-262	4.0	J-156	J-25	409.33	130.0	-927	0.02	0.00	<None>
P-263	4.0	J-4	J-157	389.51	130.0	8,399	0.15	0.04	<None>
P-264	4.0	J-157	J-24	394.94	130.0	927	0.02	0.00	<None>
P-265	4.0	J-3	J-158	353.10	130.0	-9,437	0.17	0.05	<None>
P-266	4.0	J-158	J-23	378.79	130.0	-16,909	0.30	0.14	<None>
P-267	4.0	J-2	J-159	321.08	130.0	-2,020	0.04	0.00	<None>
P-268	4.0	J-159	J-22	362.87	130.0	-8,745	0.16	0.04	<None>
P-269	4.0	J-1	J-161	301.11	130.0	-2,987	0.05	0.01	<None>
P-270	4.0	J-161	J-21	350.93	130.0	-7,844	0.14	0.03	<None>
P-271	4.0	J-81	J-162	807.09	130.0	30,053	0.53	0.41	<None>
P-272	4.0	J-162	J-59	749.02	130.0	15,856	0.28	0.13	<None>
P-273	6.0	J-62	J-163	1,078.9 9	130.0	-7,158	0.06	0.00	<None>
P-274	6.0	J-163	J-60	1,316.8 9	130.0	-28,080	0.22	0.05	<None>
P-275	6.0	J-91	J-308	1,255.2 5	130.0	20,905	0.16	0.03	<None>
P-276	6.0	J-308	J-61	999.58	130.0	-1,511	0.01	0.00	<None>
P-277	6.0	J-91	J-165	1,434.9 7	130.0	17,899	0.14	0.02	<None>
P-278	6.0	J-165	J-92	891.80	130.0	8,186	0.06	0.01	<None>
P-279	6.0	J-77	J-166	251.41	130.0	28,753	0.23	0.05	<None>
P-280	6.0	J-166	J-302	104.34	130.0	22,028	0.17	0.03	<None>
P-281	6.0	J-69	J-167	144.82	130.0	0	0.00	0.00	<None>
P-282	6.0	J-167	T-4	4,186.9 1	130.0	0	0.00	0.00	<None>
P-283	6.0	J-166	J-167	1,158.6 3	130.0	5,978	0.05	0.00	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-284	4.0	J-69	J-168	437.71	130.0	-1,210	0.02	0.00	<None>
P-285	4.0	J-168	J-70	521.41	130.0	-8,682	0.15	0.04	<None>
P-286	4.0	J-68	J-169	381.96	130.0	-160	0.00	0.00	<None>
P-287	4.0	J-169	J-76	412.73	130.0	-5,764	0.10	0.02	<None>
P-288	4.0	J-76	J-170	560.28	130.0	4,392	0.08	0.01	<None>
P-289	4.0	J-170	J-67	327.96	130.0	-464	0.01	0.00	<None>
P-290	4.0	J-302	J-171	678.41	130.0	11,168	0.20	0.07	<None>
P-291	4.0	J-171	J-66	652.55	130.0	-2,282	0.04	0.00	<None>
P-292	4.0	J-72	J-172	751.63	130.0	10,385	0.18	0.06	<None>
P-293	4.0	J-172	J-64	739.38	130.0	-3,065	0.05	0.01	<None>
P-294	4.0	J-63	J-173	887.70	130.0	12,500	0.22	0.08	<None>
P-295	4.0	J-173	J-65	881.57	130.0	-3,939	0.07	0.01	<None>
P-296	4.0	J-73	J-174	1,019.0 1	130.0	24,444	0.43	0.28	<None>
P-297	4.0	J-174	J-74	1,010.1 7	130.0	15,104	0.27	0.12	<None>
P-298	4.0	J-103	J-175	1,629.4 4	130.0	3,479	0.06	0.01	<None>
P-299	4.0	J-175	J-104	1,630.0 8	130.0	-1,751	0.03	0.00	<None>
P-300	8.0	T-5	T-2	673.90	130.0	(N/A)	(N/A)	(N/A)	<None>
P-301	10.0	J-176	J-177	38.97	130.0	73,808	0.21	0.03	<None>
P-302	10.0	J-177	J-178	487.41	130.0	73,808	0.21	0.03	<None>
P-303	10.0	J-178	J-179	1,731.8 5	130.0	38,498	0.11	0.01	<None>
P-304	10.0	J-179	J-180	973.24	130.0	23,256	0.07	0.00	<None>
P-305	10.0	J-180	J-181	976.07	130.0	6,569	0.02	0.00	<None>
P-306	8.0	J-181	J-182	205.59	130.0	6,569	0.03	0.00	<None>
P-307	8.0	J-182	J-183	740.53	130.0	3,798	0.02	0.00	<None>
P-308	8.0	J-183	J-184	265.13	130.0	217	0.00	0.00	<None>
P-309	8.0	J-184	J-185	217.36	130.0	1,845	0.01	0.00	<None>
P-310	8.0	J-184	J-186	577.62	130.0	-6,109	0.03	0.00	<None>
P-311	8.0	J-186	J-187	795.82	130.0	(N/A)	(N/A)	(N/A)	<None>
P-312	8.0	J-183	J-188	260.74	130.0	-1,164	0.01	0.00	<None>
P-313	8.0	J-188	J-189	288.84	130.0	115	0.00	0.00	<None>
P-314	8.0	J-189	J-190	167.37	130.0	1,845	0.01	0.00	<None>
P-315	8.0	J-189	J-191	333.63	130.0	-4,366	0.02	0.00	<None>
P-317	8.0	J-191	J-192	251.02	130.0	811	0.00	0.00	<None>
P-318	8.0	J-192	J-188	312.01	130.0	4,442	0.02	0.00	<None>
P-319	8.0	J-192	J-193	337.70	130.0	-6,004	0.03	0.00	<None>
P-320	8.0	J-193	J-186	260.53	130.0	-2,886	0.01	0.00	<None>
P-321	8.0	J-191	J-194	228.52	130.0	-6,231	0.03	0.00	<None>
P-322	8.0	J-194	J-180	177.54	130.0	-10,578	0.05	0.00	<None>
P-325	8.0	J-193	J-196	412.01	130.0	-3,909	0.02	0.00	<None>
P-326	8.0	J-196	J-197	255.05	130.0	-6,017	0.03	0.00	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-327	8.0	J-197	J-305	911.31	130.0	-13,662	0.06	0.00	<None>
P-328	8.0	J-305	J-186	1,018.5 3	130.0	13,477	0.06	0.00	<None>
P-329	8.0	J-305	J-199	281.64	130.0	-28,193	0.12	0.01	<None>
P-330	8.0	J-199	J-200	411.02	130.0	-31,620	0.14	0.02	<None>
P-331	8.0	J-200	J-178	158.43	130.0	-35,310	0.16	0.02	<None>
P-332	8.0	J-200	J-304	369.86	130.0	3,163	0.01	0.00	<None>
P-334	8.0	J-202	J-180	307.43	130.0	-6,110	0.03	0.00	<None>
P-335	8.0	J-202	J-203	1,667.9 5	130.0	11,862	0.05	0.00	<None>
P-336	6.0	J-204	J-199	252.77	130.0	-1,845	0.01	0.00	<None>
P-337	6.0	J-205	J-197	202.12	130.0	-1,582	0.01	0.00	<None>
P-338	6.0	J-197	J-206	261.32	130.0	1,582	0.01	0.00	<None>
P-339	6.0	J-196	J-207	149.99	130.0	1,054	0.01	0.00	<None>
P-340	8.0	J-179	J-306	608.72	130.0	15,242	0.07	0.00	<None>
P-341	8.0	J-306	J-202	642.23	130.0	7,334	0.03	0.00	<None>
P-342	8.0	J-182	J-209	423.45	130.0	1,980	0.01	0.00	<None>
P-343	8.0	J-209	J-194	414.14	130.0	-3,819	0.02	0.00	<None>
P-344	6.0	R-3	PMP-10	34.84	130.0	(N/A)	(N/A)	(N/A)	<None>
P-346	8.0	PMP-10	J-210	297.73	130.0	(N/A)	(N/A)	(N/A)	<None>
P-350	8.0	J-212	J-213	1.48	130.0	0	0.00	0.00	<None>
P-351	8.0	J-213	J-214	1.65	130.0	0	0.00	0.00	<None>
P-352	4.0	J-214	PMP-CD4	2.64	130.0	(N/A)	(N/A)	(N/A)	<None>
P-353	4.0	PMP-CD4	J-211	2.69	130.0	(N/A)	(N/A)	(N/A)	<None>
P-354	6.0	J-211	J-215	1.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-355	6.0	J-215	J-216	1.85	130.0	(N/A)	(N/A)	(N/A)	<None>
P-356	6.0	J-216	J-217	1.61	130.0	(N/A)	(N/A)	(N/A)	<None>
P-358	4.0	J-213	PMP-CD3	2.25	130.0	(N/A)	(N/A)	(N/A)	<None>
P-359	4.0	PMP-CD3	J-215	2.81	130.0	(N/A)	(N/A)	(N/A)	<None>
P-360	4.0	J-212	PMP-CD2	2.23	130.0	(N/A)	(N/A)	(N/A)	<None>
P-361	4.0	PMP-CD2	J-216	2.43	130.0	(N/A)	(N/A)	(N/A)	<None>
P-363	4.0	PMP-CD1	J-217	2.41	130.0	-1	0.00	0.00	<None>
P-364	12.0	R-4	PMP-CW1	10.00	130.0	720,174	1.42	0.70	<None>
P-366	8.0	J-210	J-218	6.49	130.0	720,174	3.19	5.06	<None>
P-368	8.0	J-218	J-217	5.95	130.0	(N/A)	(N/A)	(N/A)	<None>
P-370	4.0	J-218	J-219	97.39	130.0	720,174	12.77	148.13	<None>
P-372	8.0	J-219	J-214	6.98	130.0	1	0.00	0.00	<None>
P-373	8.0	T-6	J-219	9.35	130.0	720,173	3.19	5.06	<None>
P-374	8.0	J-217	HT-4	17.07	130.0	-1	0.00	0.00	<None>
P-375	10.0	HT-4	J-176	36.19	130.0	73,808	0.21	0.03	<None>
P-376	8.0	J-212	J-220	1.74	130.0	-1	0.00	0.00	<None>
P-377	4.0	J-220	PMP-CD1	2.28	130.0	-1	0.00	0.00	<None>
P-381	6.0	PMP-7	J-222	60.00	130.0	0	0.00	0.00	<None>

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-382	6.0	J-222	J-127	10.38	130.0	0	0.00	0.00	<None>
P-384	6.0	J-222	PSV-1	15.27	130.0	0	0.00	0.00	<None>
P-385	6.0	PSV-1	T-3	109.21	130.0	0	0.00	0.00	<None>
P-386	12.0	PMP-CW1	PSV-2	63.00	130.0	720,174	1.42	0.70	<None>
P-387	12.0	PSV-2	J-210	0.97	130.0	720,174	1.42	0.72	<None>
P-394	6.0	J-111	J-230	892.79	130.0	51,184	0.40	0.15	<None>
P-395	6.0	J-230	J-109	656.24	130.0	1	0.00	0.00	<None>
P-396	6.0	J-105	J-230	419.65	130.0	-51,183	0.40	0.15	<None>

Willow Valley Water Company

Active Scenario: MDD

Hydropneumatic Tank FlexTable: Hydropneumatic Tank (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Volume (Tank) (gal)	Pressure (Calculated) (psi)	Liquid Volume (Calculated) (gal)
HT-1	603.00	5,000.0	50.2	2,500.0
HT-2	612.00	5,216.0	56.7	2,000.0
HT-3	645.00	13,985.0	72.3	2,030.0
HT-4	599.00	5,814.0	54.9	2,500.0

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Pump Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Status (Calculated)	Flow (Total) (gpd)	Head (Maximum Operating) (ft)	Hydraulic Grade (Discharge) (ft)	Hydraulic Grade (Suction) (ft)	Pressure (Discharge) (psi)	Pressure (Suction) (psi)
PMP-1	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-2	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-3	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-4	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-5	Off	0	0.00	610.99	501.10	57.4	9.8
PMP-6	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-7	Off	0	(N/A)	501.10	463.00	36.0	19.5
PMP-8	On	364,807	(N/A)	645.65	495.02	73.4	8.2
PMP-9	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-10	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD1	Off	0	(N/A)	599.00	485.05	55.8	6.4
PMP-CD2	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD3	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD4	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CW1	On	720,174	(N/A)	528.92	454.99	52.7	20.8

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Reservoir Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Flow (Out net) (gpd)
R-1	(N/A)	(N/A)
R-2	463.00	-1
R-3	(N/A)	(N/A)
R-4	455.00	720,174

Willow Valley Water Company
Active Scenario: MDD
FlexTable: Tank Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Diameter (ft)	Level (Maximum) (ft)	Volume (Calculated) (gal)	Level (Calculated) (ft)	Elevation (Base) (ft)	Hydraulic Grade (ft)
T-2	34.20	16.00	(N/A)	(N/A)	487.00	(N/A)
T-3	34.00	24.00	150,095.80	22.10	479.00	501.10
T-4	20.00	20.00	44,650.31	19.00	476.05	495.05
T-5	34.00	16.00	(N/A)	(N/A)	487.00	(N/A)
T-6	45.00	16.50	59,483.76	5.00	480.00	485.00

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-1	479.99	597.89	51.0	0	Unit 17
J-2	479.99	597.78	51.0	0	Unit 17
J-3	479.33	597.62	51.2	0	Unit 17
J-4	479.00	597.48	51.3	0	Unit 17
J-5	479.00	597.42	51.2	0	Unit 17
J-6	478.35	597.39	51.5	0	Unit 17
J-7	478.35	597.37	51.5	0	Unit 17
J-8	477.69	597.36	51.8	0	Unit 17
J-9	477.69	597.35	51.8	0	Unit 17
J-10	476.70	597.35	52.2	0	Unit 17
J-12	476.70	597.13	52.1	19,054	Unit 17
J-13	477.69	597.13	51.7	18,418	Unit 17
J-14	478.35	597.13	51.4	20,324	Unit 17
J-15	479.33	597.23	51.0	18,418	Unit 17
J-16	479.99	597.26	50.7	19,054	Unit 17
J-17	479.99	597.34	50.8	18,418	Unit 17
J-18	479.99	597.51	50.8	17,148	Unit 17
J-19	480.64	597.85	50.7	17,783	Unit 17
J-20	480.64	597.94	50.7	12,067	Unit 17
J-21	479.33	597.81	51.3	0	Unit 17
J-22	479.33	597.80	51.3	0	Unit 17
J-23	479.33	597.73	51.2	0	Unit 17
J-24	479.33	597.41	51.1	0	Unit 17
J-25	479.33	597.41	51.1	0	Unit 17
J-26	479.33	597.65	51.2	0	Unit 17
J-27	479.00	597.51	51.3	0	Unit 17
J-28	478.35	597.49	51.5	0	Unit 17
J-29	478.35	597.50	51.6	0	Unit 17
J-30	476.70	597.72	52.4	3,176	Unit 17
J-31	480.97	600.16	51.6	0	Unit 17
J-32	483.27	601.28	51.1	0	Unit 17
J-33	479.99	601.99	52.8	0	Unit 17
J-34	479.99	600.13	52.0	0	Unit 17
J-36	479.99	598.90	51.4	10,162	Unit 17
J-37	479.99	598.42	51.2	0	Unit 17
J-38	479.99	600.82	52.3	28,580	Unit 17
J-40	479.99	597.97	51.0	13,973	Unit 17
J-41	479.33	597.83	51.3	0	Unit 17
J-42	479.99	597.85	51.0	19,054	Unit 17
J-43	479.33	597.80	51.3	0	Unit 17
J-44	479.99	597.80	51.0	0	Unit 17
J-45	477.36	598.10	52.2	0	Unit 17
J-46	479.33	597.77	51.2	5,081	Unit 17
J-47	479.33	597.76	51.2	9,527	Unit 17
J-48	479.99	597.78	51.0	3,176	Unit 17
J-49	479.33	597.78	51.2	4,446	Unit 17

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-50	484.91	602.04	50.7	1,905	Unit 17
J-52	479.99	601.98	52.8	2,540	Unit 17
J-53	479.99	602.04	52.8	2,540	Unit 17
J-54	481.63	602.07	52.1	10,797	Unit 17
J-55	479.99	602.18	52.9	0	Unit 17
J-57	479.33	601.93	53.0	0	Unit 17
J-58	475.06	598.76	53.5	11,432	Unit 17
J-59	475.06	597.45	53.0	0	Unit 17
J-60	475.06	595.61	52.2	0	Unit 17
J-61	479.00	595.38	50.4	0	Unit 17
J-62	479.33	595.38	50.2	0	Unit 17
J-63	479.33	595.41	50.2	0	Unit 17
J-64	479.33	595.19	50.1	0	Unit 17
J-65	479.99	595.22	49.9	0	Unit 17
J-66	479.33	595.16	50.1	3,811	Unit 17
J-67	479.33	595.15	50.1	0	Unit 17
J-68	479.33	595.15	50.1	7,621	Unit 17
J-69	479.33	595.15	50.1	0	Unit 17
J-70	476.05	595.21	51.6	0	Unit 17
J-72	479.99	595.30	49.9	0	Unit 17
J-73	479.00	596.23	50.7	0	Unit 17
J-74	479.99	595.29	49.9	0	Unit 17
J-76	476.70	595.17	51.3	0	Unit 17
J-77	479.99	595.33	49.9	4,446	Unit 17
J-78	479.99	595.38	49.9	9,527	Unit 17
J-79	479.00	597.04	51.1	0	Unit 17
J-80	478.35	597.67	51.6	0	Unit 17
J-81	479.00	597.82	51.4	0	Unit 17
J-82	479.33	597.74	51.2	15,243	Unit 17
J-83	479.99	598.21	51.1	14,608	Unit 17
J-84	479.00	597.75	51.4	6,351	Unit 17
J-86	479.00	598.02	51.5	0	Unit 17
J-87	479.33	598.91	51.7	15,878	Unit 17
J-88	479.00	604.59	54.3	0	Unit 17
J-90	476.05	598.46	53.0	6,351	Unit 17
J-91	475.06	595.50	52.1	0	Unit 17
J-92	478.35	595.38	50.6	0	Unit 17
J-93	479.99	595.38	49.9	6,986	Unit 17
J-95	475.72	641.82	71.9	0	Unit 17
J-97	475.72	641.36	71.7	0	Unit 17
J-98	475.06	641.26	71.9	0	Unit 17
J-99	475.06	641.16	71.9	17,783	Unit 17
J-100	475.06	641.17	71.9	17,783	Unit 17
J-101	475.06	641.19	71.9	16,513	Unit 17
J-102	475.72	641.76	71.8	8,892	Unit 17
J-103	475.06	641.18	71.9	2,540	Unit 17

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-104	474.41	641.15	72.1	9,527	Unit 17
J-105	475.06	644.60	73.3	0	Unit 17
J-106	475.06	644.60	73.3	1,270	Unit 17
J-107	473.42	642.71	73.2	1,270	Unit 17
J-108	476.05	642.71	72.1	2,540	Unit 17
J-109	476.05	644.77	73.0	0	Unit 17
J-110	476.05	645.41	73.3	0	Unit 17
J-111	476.05	645.14	73.2	11,306	Unit 17
J-115	479.99	598.25	51.2	0	Unit 17
J-116	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-117	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-118	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-119	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-120	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-121	480.97	(N/A)	(N/A)	(N/A)	Unit 17
J-124	478.35	501.10	9.8	0	Transmission
J-125	478.35	610.26	57.1	0	Unit 17
J-126	478.35	609.75	56.9	0	Unit 17
J-127	478.35	610.37	57.1	0	Unit 17
J-128	478.35	610.26	57.1	0	Unit 17
J-129	476.05	495.03	8.2	0	Transmission
J-130	476.05	645.35	73.2	0	Unit 17
J-135	476.05	644.95	73.1	0	Unit 17
J-136	476.70	644.86	72.8	7,537	Unit 17
J-137	476.70	644.86	72.8	5,653	Unit 17
J-138	478.35	644.59	71.9	5,653	Unit 17
J-140	475.72	644.58	73.1	7,537	Unit 17
J-142	476.70	644.94	72.8	5,653	Unit 17
J-143	479.99	601.48	52.6	9,527	Unit 17
J-144	479.99	598.46	51.3	10,797	Unit 17
J-145	479.33	597.77	51.2	0	Unit 17
J-146	479.99	597.77	51.0	2,540	Unit 17
J-147	479.99	601.04	52.4	28,580	Unit 17
J-148	480.64	600.39	51.8	26,040	Unit 17
J-149	475.06	600.48	54.3	13,338	Unit 17
J-150	479.99	599.04	51.5	19,054	Unit 17
J-151	476.70	597.44	52.2	13,338	Unit 17
J-152	477.36	597.37	51.9	16,513	Unit 17
J-153	477.69	597.37	51.8	17,148	Unit 17
J-154	478.35	597.39	51.5	15,243	Unit 17
J-155	478.35	597.46	51.5	14,608	Unit 17
J-156	479.00	597.40	51.2	14,608	Unit 17
J-157	479.00	597.42	51.2	12,702	Unit 17
J-158	479.33	597.64	51.2	12,702	Unit 17
J-159	479.33	597.78	51.2	11,432	Unit 17
J-161	479.33	597.83	51.3	8,257	Unit 17

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-162	477.69	597.47	51.8	24,135	Unit 17
J-163	478.35	595.40	50.6	35,567	Unit 17
J-165	477.36	595.40	51.1	16,513	Unit 17
J-166	479.33	595.29	50.2	1,270	Unit 17
J-167	479.33	595.28	50.2	10,162	Unit 17
J-168	479.33	595.15	50.1	12,702	Unit 17
J-169	479.99	595.15	49.8	9,527	Unit 17
J-170	479.99	595.15	49.8	8,257	Unit 17
J-171	479.00	595.15	50.3	22,864	Unit 17
J-172	479.99	595.18	49.8	22,864	Unit 17
J-173	479.33	595.21	50.1	27,945	Unit 17
J-174	479.99	595.55	50.0	15,878	Unit 17
J-175	471.13	641.14	73.6	8,892	Unit 17
J-176	470.14	599.00	55.7	0	Cimarron
J-177	470.14	598.99	55.7	0	Cimarron
J-178	474.41	598.96	53.9	0	Cimarron
J-179	475.72	598.93	53.3	0	Cimarron
J-180	476.05	598.92	53.2	0	Cimarron
J-181	475.06	598.92	53.6	0	Cimarron
J-182	475.06	598.92	53.6	1,344	Cimarron
J-183	470.14	598.92	55.7	8,066	Cimarron
J-184	470.14	598.92	55.7	7,618	Cimarron
J-185	470.80	598.92	55.4	3,137	Cimarron
J-186	470.80	598.92	55.4	7,618	Cimarron
J-187	474.08	(N/A)	(N/A)	(N/A)	Cimarron
J-188	472.77	598.92	54.6	5,377	Cimarron
J-189	466.86	598.92	57.1	4,481	Cimarron
J-190	475.06	598.92	53.6	3,137	Cimarron
J-191	475.06	598.92	53.6	1,792	Cimarron
J-192	468.50	598.92	56.4	4,033	Cimarron
J-193	470.14	598.92	55.7	1,344	Cimarron
J-194	475.06	598.92	53.6	896	Cimarron
J-196	468.50	598.92	56.4	1,792	Cimarron
J-197	469.49	598.92	56.0	7,618	Cimarron
J-199	470.80	598.94	55.4	2,689	Cimarron
J-200	472.77	598.95	54.6	896	Cimarron
J-202	477.69	598.92	52.5	2,689	Cimarron
J-203	479.33	598.91	51.7	20,165	Cimarron
J-204	472.77	598.94	54.6	3,137	Cimarron
J-205	466.86	598.92	57.1	2,689	Cimarron
J-206	470.14	598.92	55.7	2,689	Cimarron
J-207	469.49	598.92	56.0	1,792	Cimarron
J-209	475.72	598.92	53.3	9,859	Cimarron
J-210	470.14	499.51	12.7	0	Transmission
J-211	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-212	470.14	485.05	6.4	0	Transmission

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Junction Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpd)	Zone
J-213	470.14	485.05	6.4	0	Transmission
J-214	470.14	485.05	6.4	0	Transmission
J-215	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-216	470.14	(N/A)	(N/A)	(N/A)	Cimarron
J-217	470.14	599.00	55.8	0	Cimarron
J-218	470.14	499.47	12.7	0	Transmission
J-219	470.14	485.05	6.4	0	Transmission
J-220	470.14	485.05	6.4	0	Transmission
J-222	478.35	501.10	9.8	0	Transmission
J-230	475.00	644.77	73.5	0	<None>
J-301	491.47	602.07	47.9	6,986	Unit 17
J-302	477.69	595.28	50.9	0	Unit 17
J-303	476.05	644.95	73.1	0	Unit 17
J-304	471.13	598.95	55.3	5,377	Cimarron
J-305	470.14	598.93	55.7	1,792	Cimarron
J-306	476.70	598.92	52.9	13,444	Cimarron
J-307	476.70	597.13	52.1	24,770	Unit 17
J-308	477.69	595.38	50.9	38,107	Unit 17
J-309	475.06	641.63	72.1	0	Unit 17

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-1	6.0	J-1	J-2	189.92	130.0	103,263	0.81	0.56	<None>
P-2	6.0	J-2	J-3	228.21	130.0	115,027	0.91	0.69	<None>
P-3	6.0	J-3	J-4	228.97	130.0	107,125	0.84	0.60	<None>
P-4	6.0	J-4	J-5	233.62	130.0	70,389	0.55	0.28	<None>
P-5	6.0	J-5	J-6	244.30	130.0	42,343	0.33	0.11	<None>
P-6	6.0	J-6	J-7	240.39	130.0	40,686	0.32	0.10	<None>
P-7	6.0	J-7	J-8	250.01	130.0	26,865	0.21	0.05	<None>
P-8	6.0	J-8	J-9	257.23	130.0	11,617	0.09	0.01	<None>
P-9	6.0	J-9	J-10	253.65	130.0	-1,785	0.01	0.00	<None>
P-10	4.0	J-10	J-307	1,203.1 1	130.0	19,733	0.35	0.19	<None>
P-11	4.0	J-307	J-12	262.39	130.0	-5,037	0.09	0.02	<None>
P-12	4.0	J-12	J-13	258.91	130.0	-3,953	0.07	0.01	<None>
P-13	4.0	J-13	J-14	256.57	130.0	-1,634	0.03	0.00	<None>
P-19	4.0	J-19	J-20	191.40	130.0	-31,414	0.56	0.45	<None>
P-20	4.0	J-20	J-1	705.52	130.0	11,610	0.21	0.07	<None>
P-21	4.0	J-19	J-2	746.50	130.0	13,631	0.24	0.10	<None>
P-22	4.0	J-18	J-3	793.44	130.0	-17,148	0.30	0.15	<None>
P-23	4.0	J-17	J-4	841.28	130.0	-18,418	0.33	0.17	<None>
P-24	4.0	J-5	J-16	896.58	130.0	19,054	0.34	0.18	<None>
P-25	4.0	J-15	J-6	955.53	130.0	-18,418	0.33	0.17	<None>
P-26	4.0	J-7	J-14	1,018.0 8	130.0	21,958	0.39	0.23	<None>
P-27	4.0	J-13	J-8	1,078.1 4	130.0	-20,737	0.37	0.21	<None>
P-28	4.0	J-12	J-9	1,138.2 6	130.0	-20,137	0.36	0.20	<None>
P-30	4.0	J-21	J-22	194.15	130.0	9,566	0.17	0.05	<None>
P-33	4.0	J-24	J-25	237.98	130.0	5,615	0.10	0.02	<None>
P-35	4.0	J-26	J-27	246.80	130.0	35,909	0.64	0.57	<None>
P-36	4.0	J-27	J-28	252.46	130.0	12,529	0.22	0.08	<None>
P-37	4.0	J-28	J-29	259.01	130.0	-10,109	0.18	0.05	<None>
P-38	4.0	J-29	J-30	430.12	130.0	-33,357	0.59	0.50	<None>
P-50	3.0	J-31	J-20	432.69	130.0	55,092	1.74	5.15	<None>
P-52	4.0	J-33	J-34	259.17	130.0	140,468	2.49	7.18	<None>
P-57	4.0	J-34	J-36	719.89	130.0	64,691	1.15	1.71	<None>
P-64	4.0	J-41	J-40	899.10	130.0	-17,935	0.32	0.16	<None>
P-65	4.0	J-40	J-42	220.23	130.0	35,642	0.63	0.57	<None>
P-67	4.0	J-42	J-41	637.59	130.0	7,061	0.13	0.03	<None>
P-69	4.0	J-43	J-41	101.42	130.0	-24,996	0.44	0.29	<None>
P-70	4.0	J-42	J-44	813.81	130.0	9,528	0.17	0.05	<None>
P-71	4.0	J-44	J-43	114.60	130.0	11,305	0.20	0.07	<None>
P-72	4.0	J-44	J-21	187.91	130.0	-1,777	0.03	0.00	<None>
P-73	4.0	J-30	J-45	190.20	130.0	-71,388	1.27	2.05	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-76	4.0	J-26	J-46	64.40	130.0	-67,278	1.19	1.84	<None>
P-77	6.0	J-46	J-47	847.98	130.0	5,336	0.04	0.00	<None>
P-79	4.0	J-23	J-47	167.65	130.0	-21,949	0.39	0.23	<None>
P-81	6.0	J-49	J-43	160.17	130.0	-36,301	0.29	0.08	<None>
P-82	4.0	J-48	J-49	274.03	130.0	-3,176	0.06	0.01	<None>
P-83	4.0	J-33	J-52	298.01	130.0	5,416	0.10	0.02	<None>
P-86	8.0	J-50	J-53	599.97	130.0	-1,905	0.01	0.00	<None>
P-87	8.0	J-53	J-52	547.30	130.0	84,999	0.38	0.10	<None>
P-88	8.0	J-53	J-54	282.98	130.0	-89,445	0.40	0.11	<None>
P-89	4.0	J-32	J-55	261.54	130.0	-94,469	1.67	3.44	<None>
P-91	8.0	J-54	J-55	762.08	130.0	107,228	0.48	0.15	<None>
P-92	8.0	J-54	J-301	415.19	130.0	6,986	0.03	0.00	<None>
P-94	4.0	J-58	J-59	250.14	130.0	118,644	2.10	5.25	<None>
P-95	4.0	J-59	J-60	314.91	130.0	125,565	2.23	5.83	<None>
P-97	6.0	J-61	J-62	300.47	130.0	2,016	0.02	0.00	<None>
P-98	6.0	J-62	J-63	332.81	130.0	-36,780	0.29	0.08	<None>
P-101	4.0	J-65	J-64	262.03	130.0	17,113	0.30	0.15	<None>
P-102	4.0	J-64	J-66	353.49	130.0	12,496	0.22	0.08	<None>
P-103	4.0	J-66	J-67	266.83	130.0	5,318	0.09	0.02	<None>
P-104	4.0	J-67	J-68	242.81	130.0	4,823	0.09	0.01	<None>
P-105	4.0	J-68	J-69	254.80	130.0	-2,351	0.04	0.00	<None>
P-107	4.0	J-70	J-302	137.01	130.0	-32,789	0.58	0.48	<None>
P-108	4.0	J-302	J-72	262.18	130.0	-12,520	0.22	0.08	<None>
P-109	4.0	J-72	J-63	254.02	130.0	-30,767	0.55	0.43	<None>
P-110	4.0	J-63	J-73	264.11	130.0	-89,438	1.59	3.11	<None>
P-112	4.0	J-74	J-65	259.32	130.0	23,168	0.41	0.26	<None>
P-117	4.0	J-70	J-76	258.65	130.0	17,736	0.31	0.16	<None>
P-120	6.0	J-77	J-62	304.17	130.0	-55,645	0.44	0.18	<None>
P-121	6.0	J-78	J-61	558.25	130.0	-9,527	0.08	0.01	<None>
P-123	4.0	J-73	J-79	133.72	130.0	128,484	2.28	6.08	<None>
P-124	4.0	J-79	J-80	244.79	130.0	-80,207	1.42	2.54	<None>
P-125	4.0	J-80	J-81	247.36	130.0	-38,020	0.67	0.64	<None>
P-127	4.0	J-79	J-82	700.56	130.0	-48,277	0.86	0.99	<None>
P-128	4.0	J-82	J-83	311.58	130.0	-60,282	1.07	1.50	<None>
P-129	4.0	J-83	J-57	1,664.15	130.0	-74,890	1.33	2.24	<None>
P-130	4.0	J-80	J-84	100.99	130.0	-42,187	0.75	0.77	<None>
P-132	4.0	J-84	J-82	727.10	130.0	3,237	0.06	0.01	<None>
P-133	4.0	J-84	J-86	245.38	130.0	-51,775	0.92	1.13	<None>
P-134	4.0	J-86	J-81	102.52	130.0	69,076	1.22	1.93	<None>
P-135	4.0	J-86	J-87	162.84	130.0	120,851	2.14	5.43	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-136	4.0	J-87	J-88	831.59	130.0	136,729	2.42	6.83	<None>
P-137	4.0	J-88	J-57	242.85	130.0	176,177	3.12	10.92	<None>
P-140	4.0	J-57	J-90	886.68	130.0	101,287	1.80	3.92	<None>
P-141	4.0	J-90	J-58	246.95	130.0	-54,148	0.96	1.23	<None>
P-142	6.0	J-45	J-46	1,018.6 7	130.0	77,695	0.61	0.33	<None>
P-143	6.0	J-45	J-90	319.84	130.0	149,084	1.17	1.11	<None>
P-144	6.0	J-45	T-3	1,382.7 3	130.0	0	0.00	0.00	<None>
P-145	6.0	J-60	J-91	376.43	130.0	73,149	0.58	0.30	<None>
P-148	6.0	J-92	J-61	289.82	130.0	9,995	0.08	0.01	<None>
P-149	6.0	J-92	J-93	816.33	130.0	6,986	0.06	0.00	<None>
P-151	4.0	J-95	J-309	91.17	130.0	73,039	1.29	2.14	<None>
P-152	4.0	J-309	J-97	290.60	130.0	46,063	0.82	0.91	<None>
P-153	4.0	J-97	J-98	256.40	130.0	28,959	0.51	0.39	<None>
P-155	4.0	J-99	J-100	256.47	130.0	-9,783	0.17	0.05	<None>
P-156	4.0	J-100	J-101	296.34	130.0	-10,463	0.19	0.06	<None>
P-157	4.0	J-101	J-309	1,287.7 8	130.0	-26,976	0.48	0.34	<None>
P-158	4.0	J-97	J-100	1,293.4 9	130.0	17,104	0.30	0.15	<None>
P-159	4.0	J-99	J-98	1,299.3 9	130.0	-12,291	0.22	0.08	<None>
P-160	4.0	J-95	J-102	1,498.6 4	130.0	8,892	0.16	0.04	<None>
P-161	4.0	J-98	J-103	621.12	130.0	16,668	0.30	0.14	<None>
P-163	4.0	J-103	J-104	638.16	130.0	8,213	0.15	0.04	<None>
P-164	4.0	J-104	J-99	666.67	130.0	-4,291	0.08	0.01	<None>
P-167	4.0	J-105	J-106	843.42	130.0	1,270	0.02	0.00	<None>
P-168	4.0	J-95	J-108	336.23	130.0	-81,930	1.45	2.64	<None>
P-169	4.0	J-108	J-105	655.48	130.0	-85,741	1.52	2.88	<None>
P-170	4.0	J-107	J-108	1,532.8 1	130.0	-1,270	0.02	0.00	<None>
P-176	4.0	J-36	J-115	524.43	130.0	54,529	0.97	1.24	<None>
P-177	4.0	J-115	J-1	77.43	130.0	111,252	1.97	4.66	<None>
P-178	4.0	J-37	J-115	126.32	130.0	56,723	1.01	1.34	<None>
P-179	6.0	J-33	J-55	97.06	130.0	203,044	1.60	1.97	<None>
P-181	8.0	J-116	J-117	9.05	130.0	(N/A)	(N/A)	(N/A)	<None>
P-182	8.0	J-117	PMP-2	7.33	130.0	(N/A)	(N/A)	(N/A)	<None>
P-184	8.0	J-118	J-119	8.27	130.0	(N/A)	(N/A)	(N/A)	<None>
P-185	8.0	J-119	PMP-4	8.45	130.0	(N/A)	(N/A)	(N/A)	<None>
P-186	8.0	J-116	PMP-3	8.42	130.0	(N/A)	(N/A)	(N/A)	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-187	8.0	PMP-3	J-118	8.65	130.0	(N/A)	(N/A)	(N/A)	<None>
P-189	8.0	PMP-2	J-120	9.75	130.0	(N/A)	(N/A)	(N/A)	<None>
P-190	8.0	J-120	J-118	9.19	130.0	(N/A)	(N/A)	(N/A)	<None>
P-191	8.0	J-116	J-121	8.34	130.0	(N/A)	(N/A)	(N/A)	<None>
P-194	8.0	PMP-4	J-121	8.57	130.0	(N/A)	(N/A)	(N/A)	<None>
P-195	8.0	J-117	J-55	10.66	130.0	(N/A)	(N/A)	(N/A)	<None>
P-196	4.0	J-55	HT-1	16.10	130.0	-	7.18	50.95	<None>
P-197	6.0	R-1	PMP-1	15.86	130.0	(N/A)	(N/A)	(N/A)	<None>
P-199	6.0	PMP-1	T-2	43.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-200	8.0	T-2	J-119	16.34	130.0	(N/A)	(N/A)	(N/A)	<None>
P-201	8.0	T-3	J-124	38.87	130.0	-1	0.00	0.00	<None>
P-202	8.0	J-124	PMP-6	32.00	130.0	(N/A)	(N/A)	(N/A)	<None>
P-203	6.0	PMP-6	J-125	10.40	130.0	(N/A)	(N/A)	(N/A)	<None>
P-204	6.0	J-125	PMP-5	28.05	130.0	1	0.00	0.00	<None>
P-205	8.0	PMP-5	J-124	14.02	130.0	2	0.00	0.00	<None>
P-206	4.0	J-88	J-126	163.27	130.0	-	5.55	31.64	<None>
P-207	4.0	J-126	J-58	926.34	130.0	312,907	3.27	11.86	<None>
P-209	6.0	R-2	PMP-7	10.69	130.0	184,224	0	0.00	<None>
P-211	6.0	J-125	J-128	22.08	130.0	0	0.00	0.00	<None>
P-212	6.0	J-128	J-126	49.06	130.0	-1	0.00	0.00	<None>
P-213	6.0	J-127	J-128	10.76	130.0	497,130	3.92	10.35	<None>
P-214	4.0	J-127	HT-2	21.87	130.0	497,131	3.92	10.34	<None>
P-215	8.0	T-4	J-129	13.66	130.0	-	8.81	74.57	<None>
P-216	8.0	J-129	PMP-9	13.78	130.0	497,132	1.62	1.44	<None>
P-217	6.0	PMP-9	J-110	5.87	130.0	365,664	(N/A)	(N/A)	<None>
P-218	8.0	J-129	PMP-8	5.69	130.0	(N/A)	(N/A)	(N/A)	<None>
P-219	6.0	PMP-8	J-110	14.20	130.0	365,664	1.62	1.44	<None>
P-220	6.0	J-110	J-130	10.13	130.0	365,664	2.88	5.86	<None>
P-221	6.0	J-130	J-111	244.87	130.0	365,664	2.88	5.86	<None>
P-222	4.0	HT-3	J-130	18.66	130.0	130,350	1.03	0.87	<None>
P-229	4.0	J-135	J-136	496.25	130.0	-	4.17	18.66	<None>
P-230	4.0	J-136	J-137	186.52	130.0	235,314	0.33	0.17	<None>
P-231	2.0	J-136	J-138	488.52	130.0	18,843	0.10	0.02	<None>
P-232	2.0	J-135	J-140	396.99	130.0	5,653	0.40	0.55	<None>
P-233	4.0	J-111	J-303	391.81	130.0	5,653	0.53	0.93	<None>
P-234	4.0	J-303	J-135	25.67	130.0	7,537	0.57	0.46	<None>
P-235	4.0	J-303	J-142	969.30	130.0	32,033	0.47	0.32	<None>
P-236	4.0	J-52	J-143	167.11	130.0	26,380	0.10	0.02	<None>
P-238	4.0	J-143	J-144	1,238.89	130.0	5,653	1.56	3.01	<None>
P-239	4.0	J-144	J-40	267.24	130.0	87,874	1.39	2.43	<None>
						78,347	1.20	1.85	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-240	6.0	J-47	J-145	111.48	130.0	-26,139	0.21	0.04	<None>
P-241	6.0	J-145	J-49	290.45	130.0	-28,680	0.23	0.05	<None>
P-242	4.0	J-145	J-146	206.88	130.0	2,540	0.05	0.00	<None>
P-243	4.0	J-38	J-147	577.51	130.0	-28,580	0.51	0.38	<None>
P-244	4.0	J-147	J-33	698.61	130.0	-57,161	1.01	1.36	<None>
P-245	4.0	J-32	J-148	801.29	130.0	51,285	0.91	1.11	<None>
P-246	4.0	J-148	J-31	754.97	130.0	25,246	0.45	0.30	<None>
P-247	4.0	J-31	J-149	770.29	130.0	-29,846	0.53	0.41	<None>
P-248	4.0	J-149	J-32	992.50	130.0	-43,184	0.77	0.81	<None>
P-249	4.0	J-37	J-150	469.08	130.0	-56,723	1.01	1.34	<None>
P-250	4.0	J-150	J-34	473.99	130.0	-75,777	1.34	2.29	<None>
P-251	4.0	J-30	J-151	503.81	130.0	34,856	0.62	0.54	<None>
P-252	4.0	J-151	J-10	392.35	130.0	21,518	0.38	0.22	<None>
P-253	4.0	J-9	J-152	518.48	130.0	-6,735	0.12	0.03	<None>
P-254	4.0	J-152	J-29	515.25	130.0	-23,248	0.41	0.26	<None>
P-255	4.0	J-8	J-153	489.90	130.0	-5,490	0.10	0.02	<None>
P-256	4.0	J-153	J-28	492.05	130.0	-22,638	0.40	0.24	<None>
P-257	4.0	J-7	J-154	466.51	130.0	-8,137	0.14	0.04	<None>
P-258	4.0	J-154	J-27	465.56	130.0	-23,380	0.41	0.26	<None>
P-259	4.0	J-6	J-155	455.17	130.0	-16,762	0.30	0.14	<None>
P-260	4.0	J-155	J-26	428.85	130.0	-31,369	0.56	0.45	<None>
P-261	4.0	J-5	J-156	425.62	130.0	8,993	0.16	0.04	<None>
P-262	4.0	J-156	J-25	409.33	130.0	-5,615	0.10	0.02	<None>
P-263	4.0	J-4	J-157	389.51	130.0	18,318	0.32	0.17	<None>
P-264	4.0	J-157	J-24	394.94	130.0	5,615	0.10	0.02	<None>
P-265	4.0	J-3	J-158	353.10	130.0	-9,246	0.16	0.05	<None>
P-266	4.0	J-158	J-23	378.79	130.0	-21,949	0.39	0.23	<None>
P-267	4.0	J-2	J-159	321.08	130.0	1,866	0.03	0.00	<None>
P-268	4.0	J-159	J-22	362.87	130.0	-9,566	0.17	0.05	<None>
P-269	4.0	J-1	J-161	301.11	130.0	19,600	0.35	0.19	<None>
P-270	4.0	J-161	J-21	350.93	130.0	11,343	0.20	0.07	<None>
P-271	4.0	J-81	J-162	807.09	130.0	31,056	0.55	0.44	<None>
P-272	4.0	J-162	J-59	749.02	130.0	6,921	0.12	0.03	<None>
P-273	6.0	J-62	J-163	1,078.9 9	130.0	-16,849	0.13	0.02	<None>
P-274	6.0	J-163	J-60	1,316.8 9	130.0	-52,416	0.41	0.16	<None>
P-275	6.0	J-91	J-308	1,255.2 5	130.0	39,654	0.31	0.10	<None>
P-276	6.0	J-308	J-61	999.58	130.0	1,547	0.01	0.00	<None>
P-277	6.0	J-91	J-165	1,434.9 7	130.0	33,495	0.26	0.07	<None>
P-278	6.0	J-165	J-92	891.80	130.0	16,982	0.13	0.02	<None>
P-279	6.0	J-77	J-166	251.41	130.0	51,199	0.40	0.15	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-280	6.0	J-166	J-302	104.34	130.0	39,766	0.31	0.10	<None>
P-281	6.0	J-69	J-167	144.82	130.0	0	0.00	0.00	<None>
P-282	6.0	J-167	T-4	4,186.9 1	130.0	0	0.00	0.00	<None>
P-283	6.0	J-166	J-167	1,158.6 3	130.0	10,163	0.08	0.01	<None>
P-284	4.0	J-69	J-168	437.71	130.0	-2,351	0.04	0.00	<None>
P-285	4.0	J-168	J-70	521.41	130.0	-15,053	0.27	0.11	<None>
P-286	4.0	J-68	J-169	381.96	130.0	-448	0.01	0.00	<None>
P-287	4.0	J-169	J-76	412.73	130.0	-9,975	0.18	0.05	<None>
P-288	4.0	J-76	J-170	560.28	130.0	7,761	0.14	0.03	<None>
P-289	4.0	J-170	J-67	327.96	130.0	-496	0.01	0.00	<None>
P-290	4.0	J-302	J-171	678.41	130.0	19,497	0.35	0.19	<None>
P-291	4.0	J-171	J-66	652.55	130.0	-3,367	0.06	0.01	<None>
P-292	4.0	J-72	J-172	751.63	130.0	18,247	0.32	0.16	<None>
P-293	4.0	J-172	J-64	739.38	130.0	-4,617	0.08	0.01	<None>
P-294	4.0	J-63	J-173	887.70	130.0	21,891	0.39	0.23	<None>
P-295	4.0	J-173	J-65	881.57	130.0	-6,054	0.11	0.02	<None>
P-296	4.0	J-73	J-174	1,019.0 1	130.0	39,046	0.69	0.67	<None>
P-297	4.0	J-174	J-74	1,010.1 7	130.0	23,168	0.41	0.25	<None>
P-298	4.0	J-103	J-175	1,629.4 4	130.0	5,914	0.10	0.02	<None>
P-299	4.0	J-175	J-104	1,630.0 8	130.0	-2,977	0.05	0.01	<None>
P-300	8.0	T-5	T-2	673.90	130.0	(N/A)	(N/A)	(N/A)	<None>
P-301	10.0	J-176	J-177	38.97	130.0	125,474	0.36	0.07	<None>
P-302	10.0	J-177	J-178	487.41	130.0	125,474	0.36	0.07	<None>
P-303	10.0	J-178	J-179	1,731.8 5	130.0	65,447	0.19	0.02	<None>
P-304	10.0	J-179	J-180	973.24	130.0	39,536	0.11	0.01	<None>
P-305	10.0	J-180	J-181	976.07	130.0	11,167	0.03	0.00	<None>
P-306	8.0	J-181	J-182	205.59	130.0	11,167	0.05	0.00	<None>
P-307	8.0	J-182	J-183	740.53	130.0	6,457	0.03	0.00	<None>
P-308	8.0	J-183	J-184	265.13	130.0	369	0.00	0.00	<None>
P-309	8.0	J-184	J-185	217.36	130.0	3,137	0.01	0.00	<None>
P-310	8.0	J-184	J-186	577.62	130.0	-10,385	0.05	0.00	<None>
P-311	8.0	J-186	J-187	795.82	130.0	(N/A)	(N/A)	(N/A)	<None>
P-312	8.0	J-183	J-188	260.74	130.0	-1,979	0.01	0.00	<None>
P-313	8.0	J-188	J-189	288.84	130.0	196	0.00	0.00	<None>
P-314	8.0	J-189	J-190	167.37	130.0	3,137	0.01	0.00	<None>
P-315	8.0	J-189	J-191	333.63	130.0	-7,422	0.03	0.00	<None>
P-317	8.0	J-191	J-192	251.02	130.0	1,378	0.01	0.00	<None>
P-318	8.0	J-192	J-188	312.01	130.0	7,552	0.03	0.00	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-319	8.0	J-192	J-193	337.70	130.0	-10,207	0.05	0.00	<None>
P-320	8.0	J-193	J-186	260.53	130.0	-4,907	0.02	0.00	<None>
P-321	8.0	J-191	J-194	228.52	130.0	-10,593	0.05	0.00	<None>
P-322	8.0	J-194	J-180	177.54	130.0	-17,982	0.08	0.01	<None>
P-325	8.0	J-193	J-196	412.01	130.0	-6,645	0.03	0.00	<None>
P-326	8.0	J-196	J-197	255.05	130.0	-10,229	0.05	0.00	<None>
P-327	8.0	J-197	J-305	911.31	130.0	-23,225	0.10	0.01	<None>
P-328	8.0	J-305	J-186	1,018.5 3	130.0	22,910	0.10	0.01	<None>
P-329	8.0	J-305	J-199	281.64	130.0	-47,928	0.21	0.03	<None>
P-330	8.0	J-199	J-200	411.02	130.0	-53,753	0.24	0.04	<None>
P-331	8.0	J-200	J-178	158.43	130.0	-60,027	0.27	0.05	<None>
P-332	8.0	J-200	J-304	369.86	130.0	5,377	0.02	0.00	<None>
P-334	8.0	J-202	J-180	307.43	130.0	-10,387	0.05	0.00	<None>
P-335	8.0	J-202	J-203	1,667.9 5	130.0	20,165	0.09	0.01	<None>
P-336	6.0	J-204	J-199	252.77	130.0	-3,137	0.02	0.00	<None>
P-337	6.0	J-205	J-197	202.12	130.0	-2,689	0.02	0.00	<None>
P-338	6.0	J-197	J-206	261.32	130.0	2,689	0.02	0.00	<None>
P-339	6.0	J-196	J-207	149.99	130.0	1,792	0.01	0.00	<None>
P-340	8.0	J-179	J-306	608.72	130.0	25,911	0.11	0.01	<None>
P-341	8.0	J-306	J-202	642.23	130.0	12,467	0.06	0.00	<None>
P-342	8.0	J-182	J-209	423.45	130.0	3,366	0.01	0.00	<None>
P-343	8.0	J-209	J-194	414.14	130.0	-6,493	0.03	0.00	<None>
P-344	6.0	R-3	PMP-10	34.84	130.0	(N/A)	(N/A)	(N/A)	<None>
P-346	8.0	PMP-10	J-210	297.73	130.0	(N/A)	(N/A)	(N/A)	<None>
P-350	8.0	J-212	J-213	1.48	130.0	0	0.00	0.00	<None>
P-351	8.0	J-213	J-214	1.65	130.0	0	0.00	0.00	<None>
P-352	4.0	J-214	PMP-CD4	2.64	130.0	(N/A)	(N/A)	(N/A)	<None>
P-353	4.0	PMP-CD4	J-211	2.69	130.0	(N/A)	(N/A)	(N/A)	<None>
P-354	6.0	J-211	J-215	1.77	130.0	(N/A)	(N/A)	(N/A)	<None>
P-355	6.0	J-215	J-216	1.85	130.0	(N/A)	(N/A)	(N/A)	<None>
P-356	6.0	J-216	J-217	1.61	130.0	(N/A)	(N/A)	(N/A)	<None>
P-358	4.0	J-213	PMP-CD3	2.25	130.0	(N/A)	(N/A)	(N/A)	<None>
P-359	4.0	PMP-CD3	J-215	2.81	130.0	(N/A)	(N/A)	(N/A)	<None>
P-360	4.0	J-212	PMP-CD2	2.23	130.0	(N/A)	(N/A)	(N/A)	<None>
P-361	4.0	PMP-CD2	J-216	2.43	130.0	(N/A)	(N/A)	(N/A)	<None>
P-363	4.0	PMP-CD1	J-217	2.41	130.0	-1	0.00	0.00	<None>
P-364	12.0	R-4	PMP-CW1	10.00	130.0	720,174	1.42	0.70	<None>
P-366	8.0	J-210	J-218	6.49	130.0	720,180	3.19	5.06	<None>
P-368	8.0	J-218	J-217	5.95	130.0	(N/A)	(N/A)	(N/A)	<None>
P-370	4.0	J-218	J-219	97.39	130.0	720,180	12.77	148.13	<None>
P-372	8.0	J-219	J-214	6.98	130.0	1	0.00	0.00	<None>

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pipe Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Dia. (in)	Start Node	Stop Node	Length (ft)	Hazen- Williams C	Flow (gpd)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Zone
P-373	8.0	T-6	J-219	9.35	130.0	-	3.19	5.06	<None>
P-374	8.0	J-217	HT-4	17.07	130.0	-1	0.00	0.00	<None>
P-375	10.0	HT-4	J-176	36.19	130.0	125,474	0.36	0.07	<None>
P-376	8.0	J-212	J-220	1.74	130.0	-1	0.00	0.00	<None>
P-377	4.0	J-220	PMP-CD1	2.28	130.0	-1	0.00	0.00	<None>
P-381	6.0	PMP-7	J-222	60.00	130.0	0	0.00	0.00	<None>
P-382	6.0	J-222	J-127	10.38	130.0	0	0.00	0.00	<None>
P-384	6.0	J-222	PSV-1	15.27	130.0	0	0.00	0.00	<None>
P-385	6.0	PSV-1	T-3	109.21	130.0	0	0.00	0.00	<None>
P-386	12.0	PMP-CW1	PSV-2	63.00	130.0	720,174	1.42	0.70	<None>
P-387	12.0	PSV-2	J-210	0.97	130.0	720,180	1.42	0.69	<None>
P-394	6.0	J-111	J-230	892.79	130.0	87,011	0.69	0.41	<None>
P-395	6.0	J-230	J-109	656.24	130.0	0	0.00	0.00	<None>
P-396	6.0	J-105	J-230	419.65	130.0	-87,011	0.69	0.41	<None>

Willow Valley Water Company

Active Scenario: PHD

Hydropneumatic Tank FlexTable: Hydropneumatic Tank (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Volume (Tank) (gal)	Pressure (Calculated) (psi)	Liquid Volume (Calculated) (gal)
HT-1	603.00	5,000.0	50.2	2,500.0
HT-2	612.00	5,216.0	56.7	2,000.0
HT-3	645.00	13,985.0	72.3	2,030.0
HT-4	599.00	5,814.0	54.9	2,500.0

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Pump Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Status (Calculated)	Flow (Total) (gpd)	Head (Maximum Operating) (ft)	Hydraulic Grade (Discharge) (ft)	Hydraulic Grade (Suction) (ft)	Pressure (Discharge) (psi)	Pressure (Suction) (psi)
PMP-1	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-2	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-3	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-4	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-5	Off	0	0.00	610.26	501.10	57.1	9.8
PMP-6	<None>	(N/A)	0.00	(N/A)	(N/A)	(N/A)	(N/A)
PMP-7	Off	0	(N/A)	501.10	463.00	36.0	19.5
PMP-8	On	365,664	(N/A)	645.49	495.02	73.3	8.2
PMP-9	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-10	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD1	Off	0	(N/A)	599.00	485.05	55.8	6.4
PMP-CD2	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD3	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CD4	<None>	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PMP-CW1	On	720,174	(N/A)	528.92	454.99	52.7	20.8

Willow Valley Water Company
Active Scenario: PHD
FlexTable: Reservoir Report (WVWC Model.wtg)

Current Time: 0.000 hours

Label	Hydraulic Grade (ft)	Flow (Out net) (gpd)
R-1	(N/A)	(N/A)
R-2	463.00	0
R-3	(N/A)	(N/A)
R-4	455.00	720,174

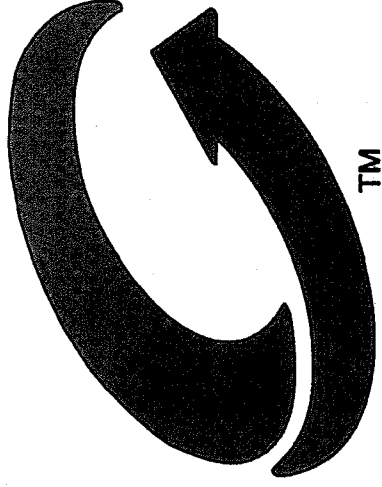
Willow Valley Water Company
Active Scenario: PHD
FlexTable: Tank Report (WVWC Model.wtg)

Current Time: 0.000 hours

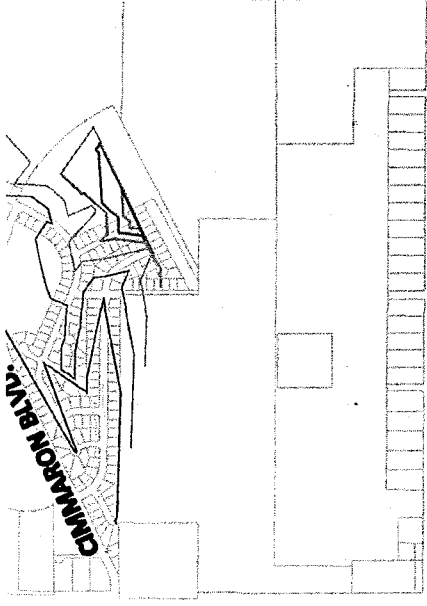
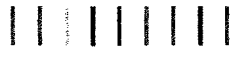
Label	Diameter (ft)	Level (Maximum) (ft)	Volume (Calculated) (gal)	Level (Calculated) (ft)	Elevation (Base) (ft)	Hydraulic Grade (ft)
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T-3	34.00	24.00	150,095.80	22.10	479.00	501.10
T-4	20.00	20.00	44,650.31	19.00	476.05	495.05
T-5	34.00	16.00	(N/A)	(N/A)	487.00	(N/A)
T-6	45.00	16.50	59,483.76	5.00	480.00	485.00

Appendix B - Extended Period Simulation Model Results

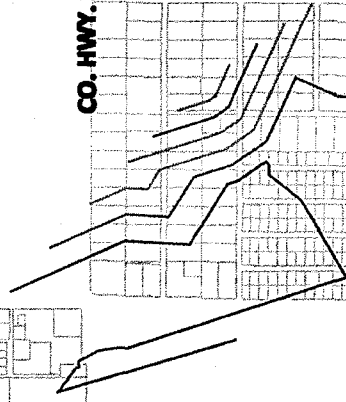
WILLOW VA WATER CON WATER AGE CONTOUR N



C
Legend



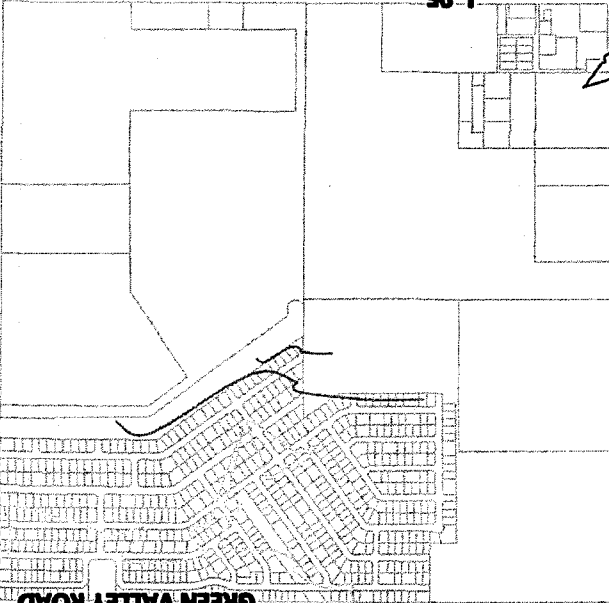
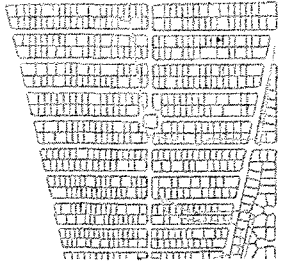
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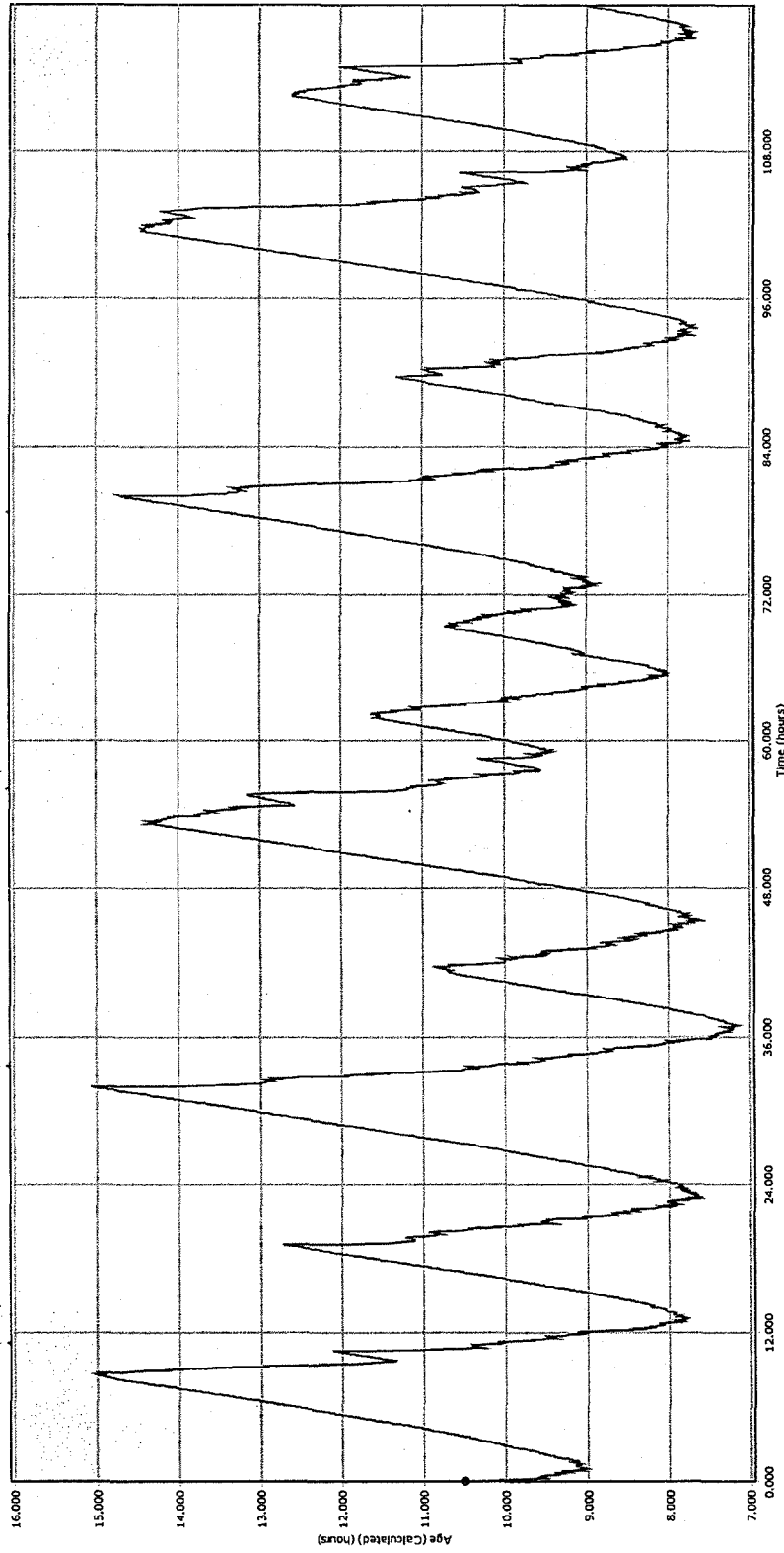
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CO. HWY. 347

GREEN VALLEY ROAD

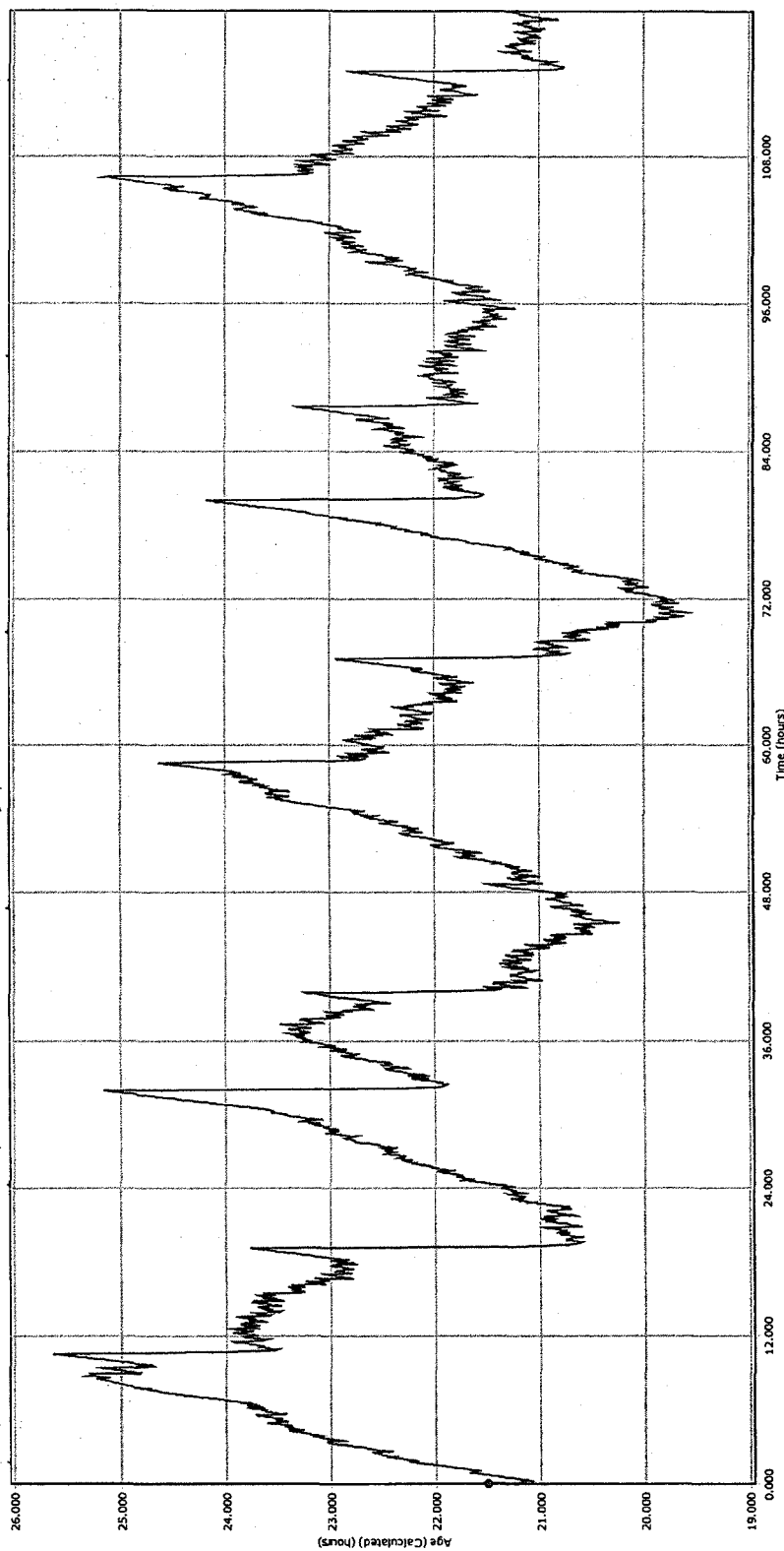


Green Valley Road WDC

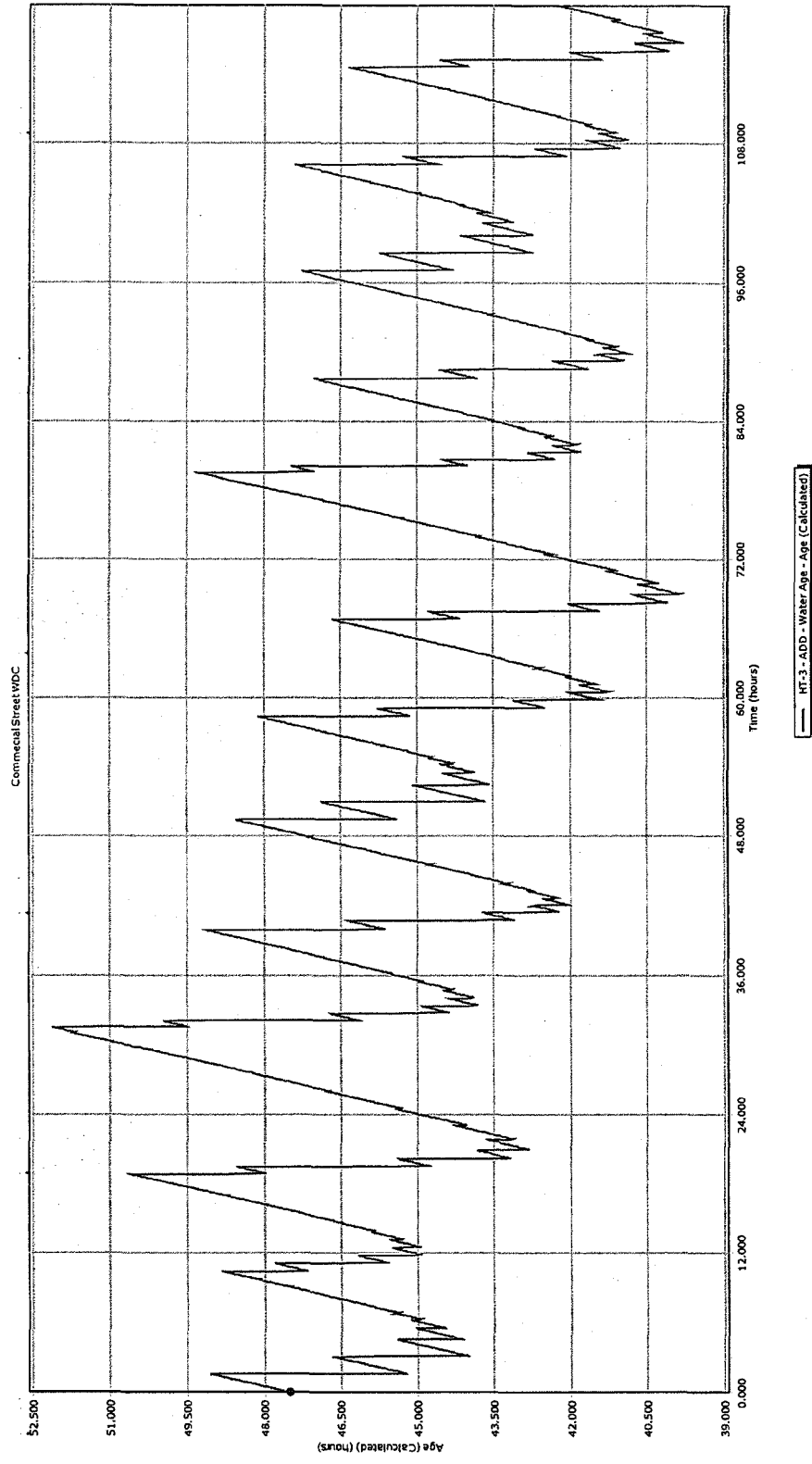


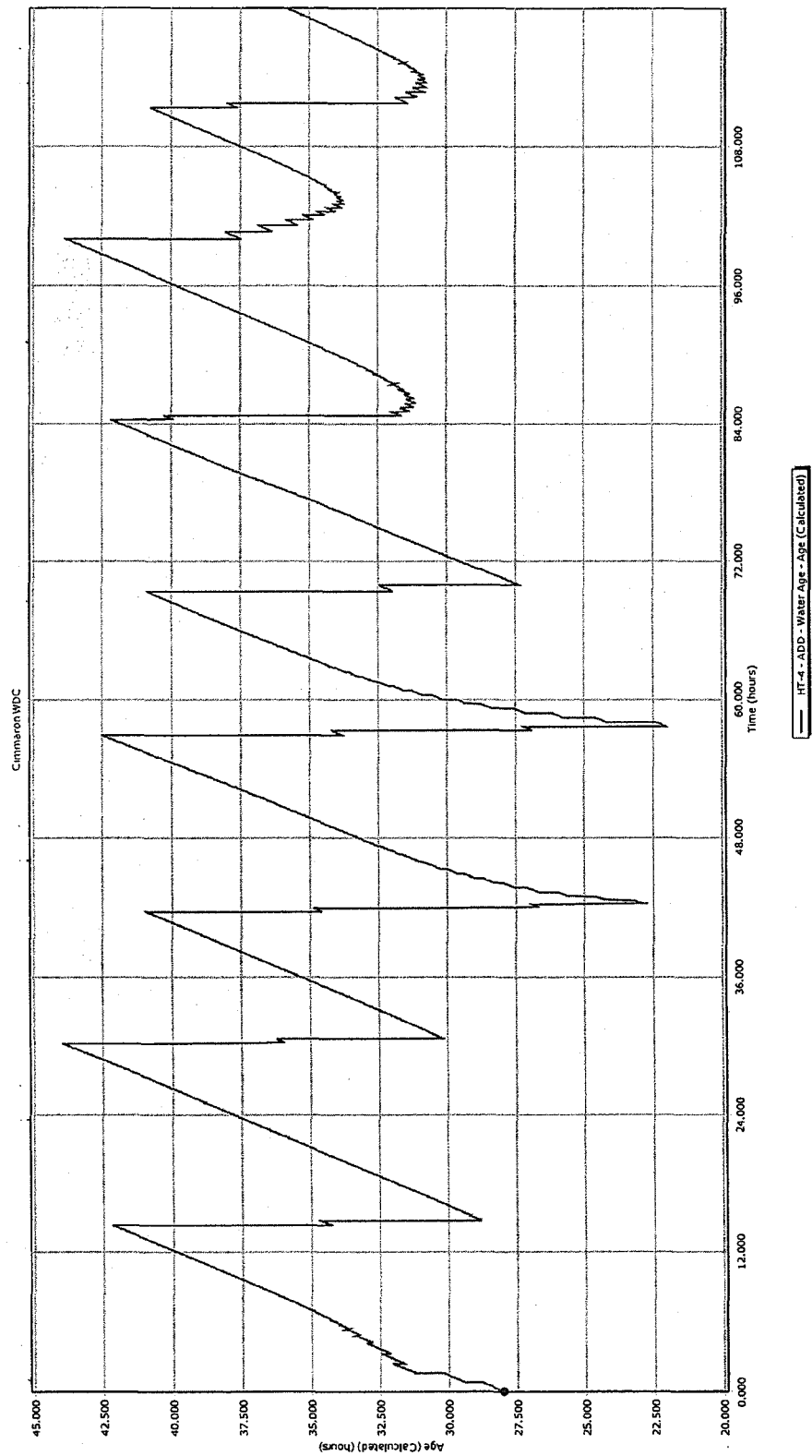
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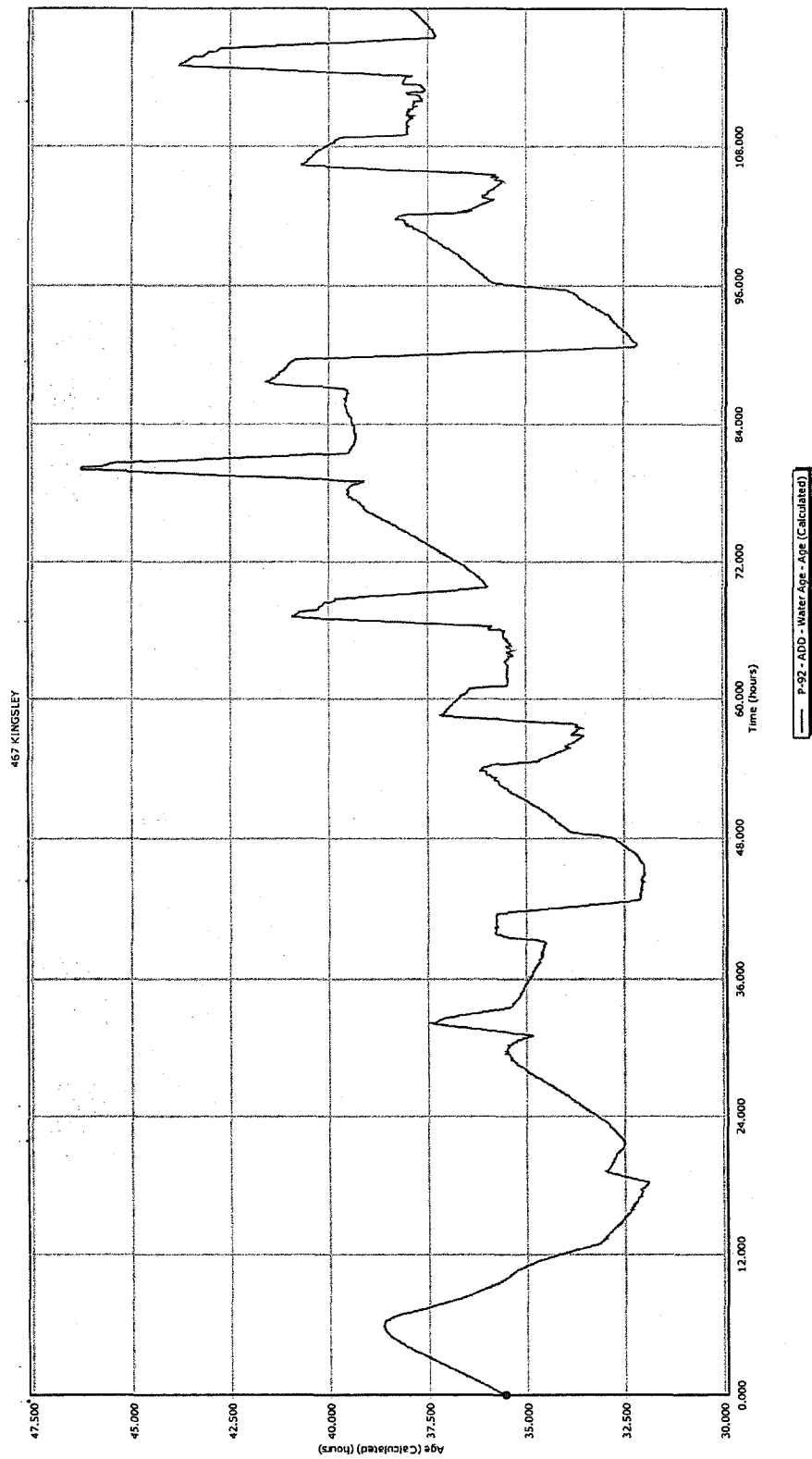
Kingsley Road WDC



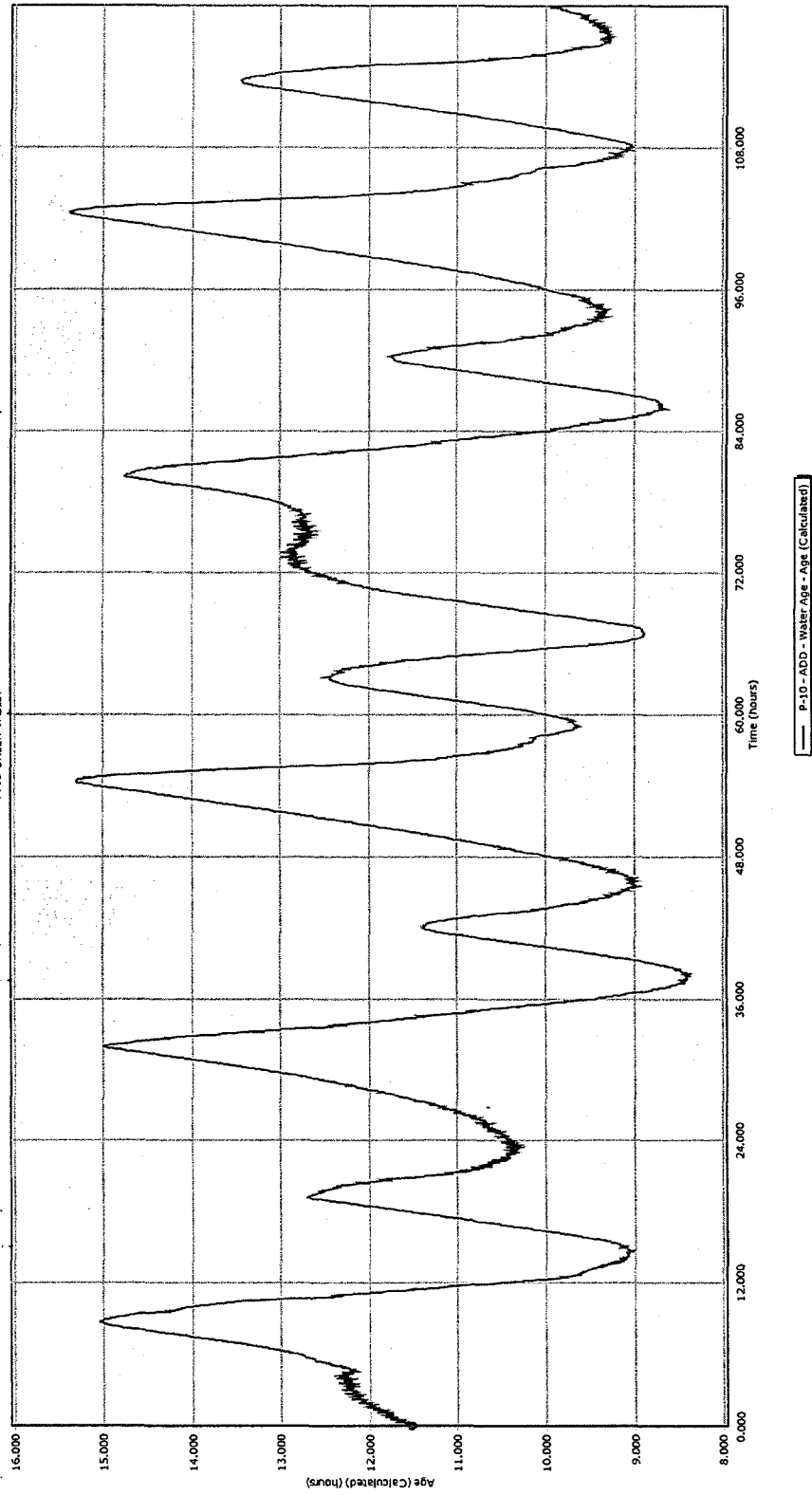
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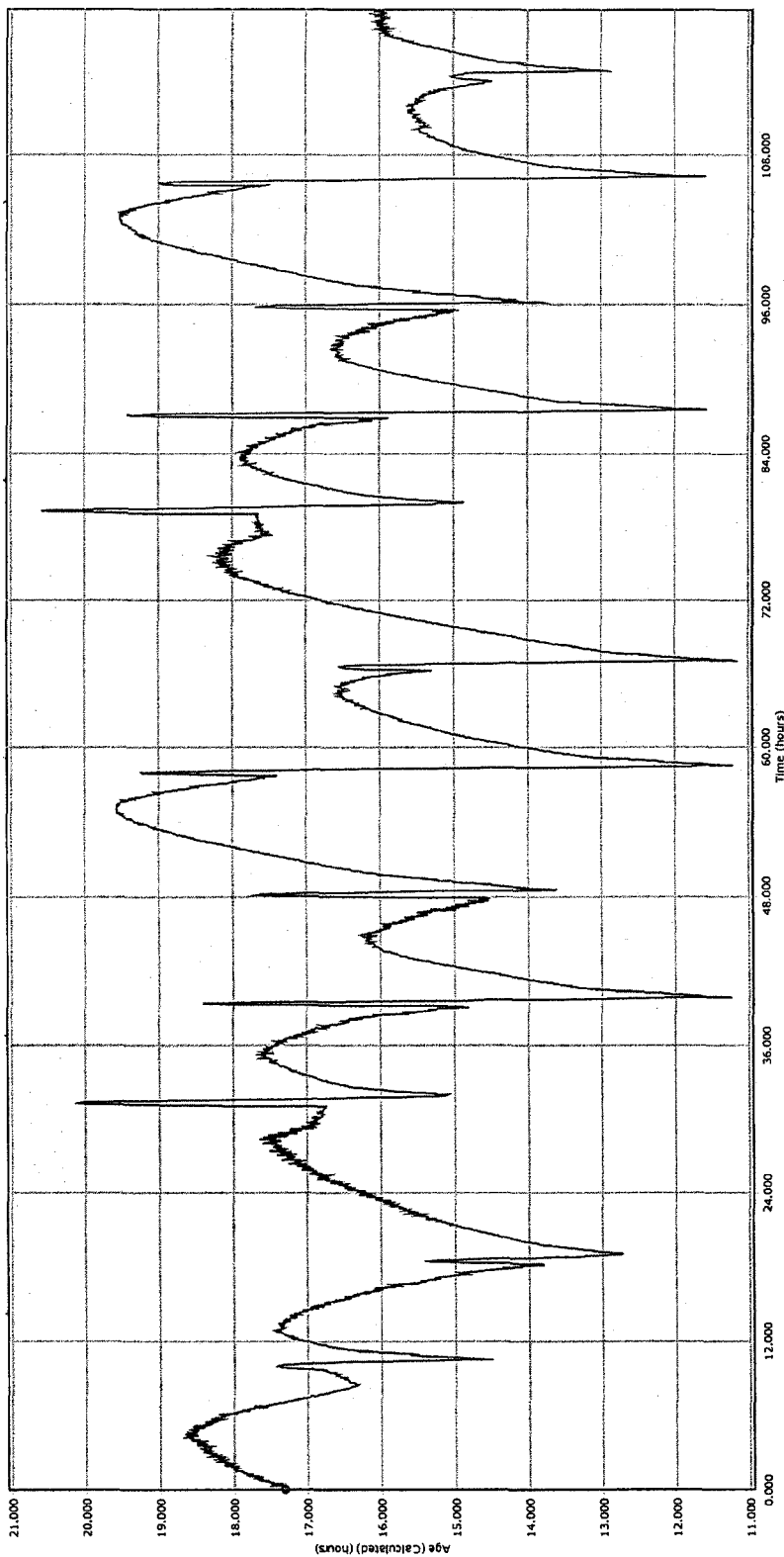




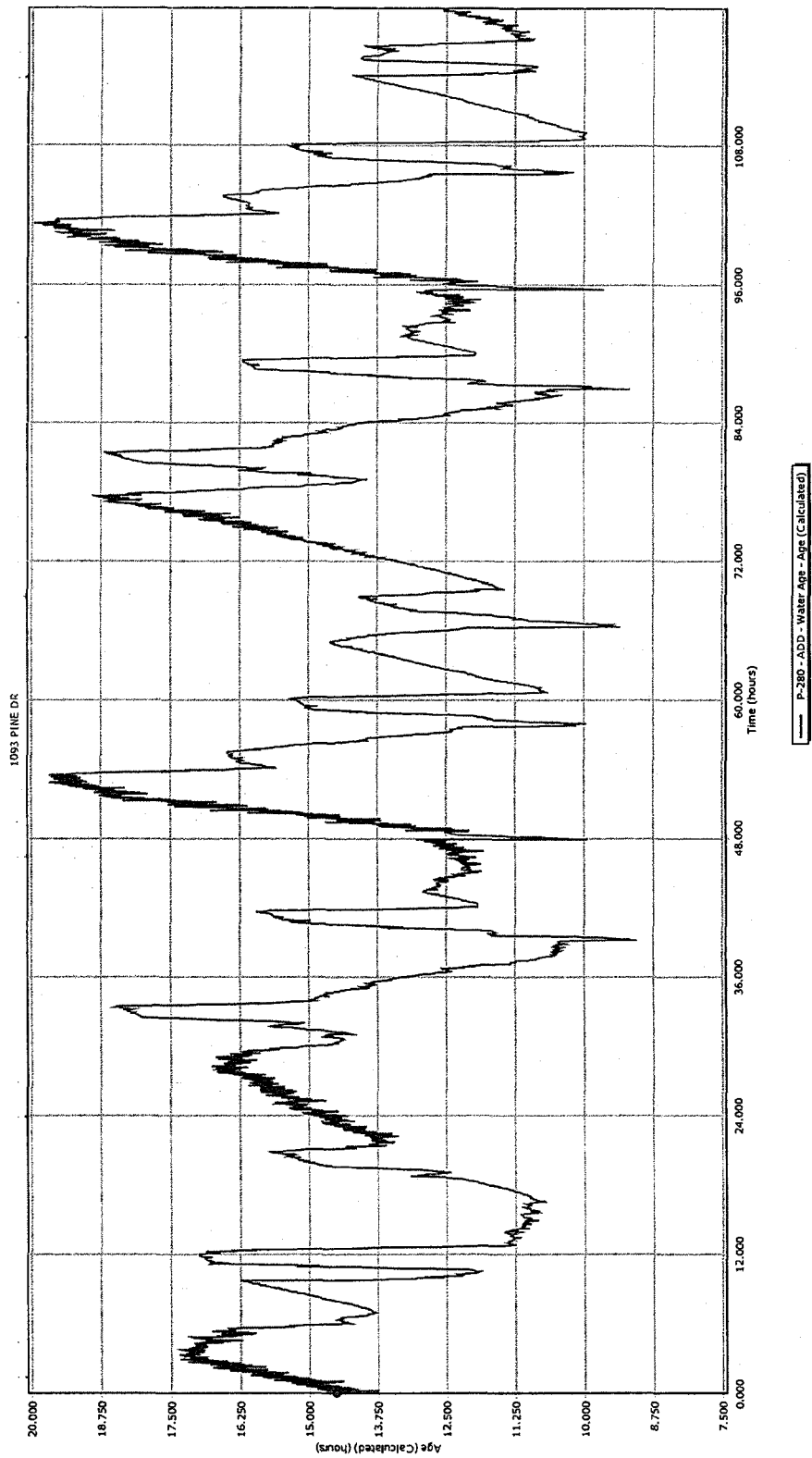
7793 GREEN VALLEY



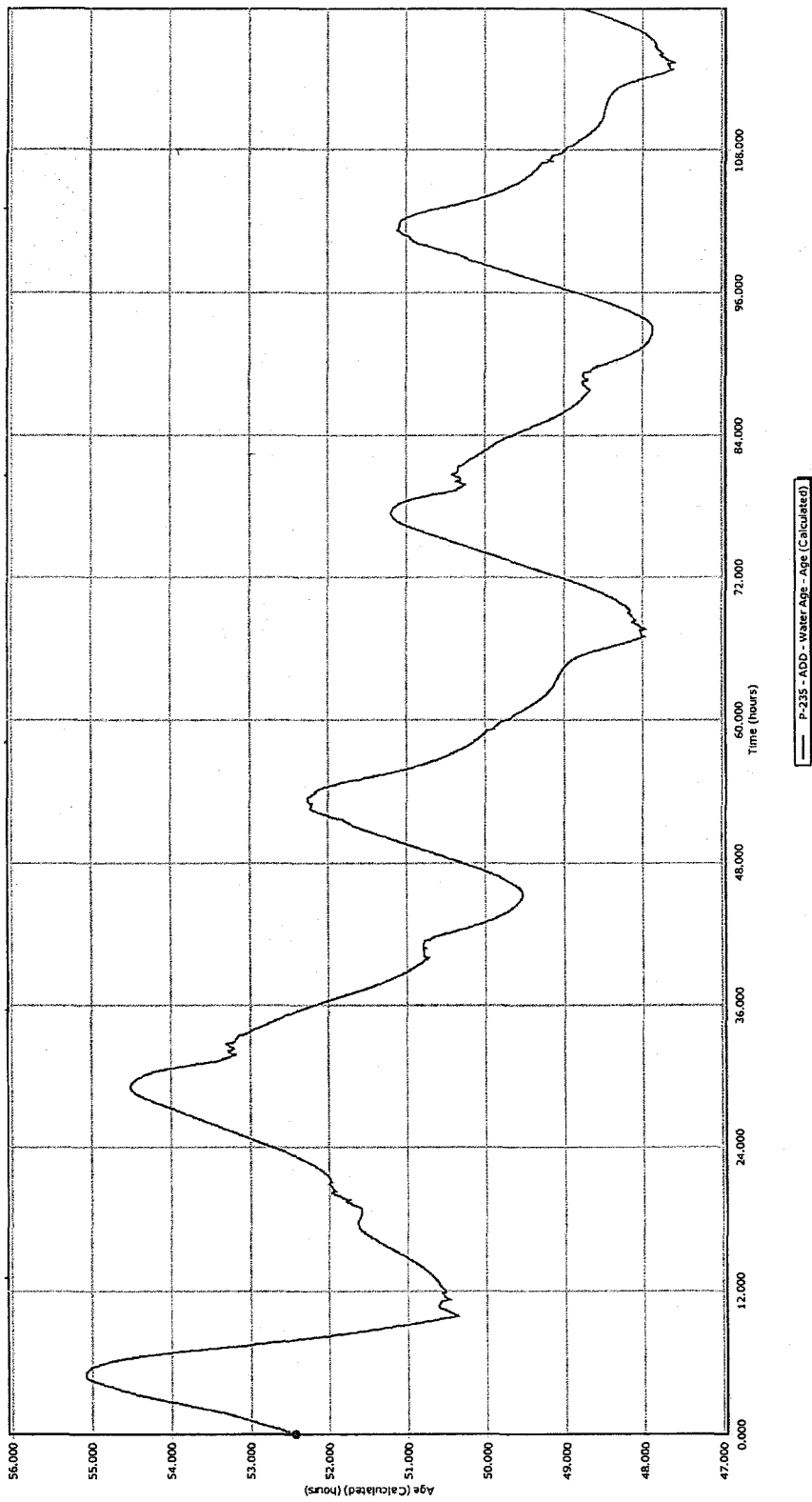
8170 ASPEN DR

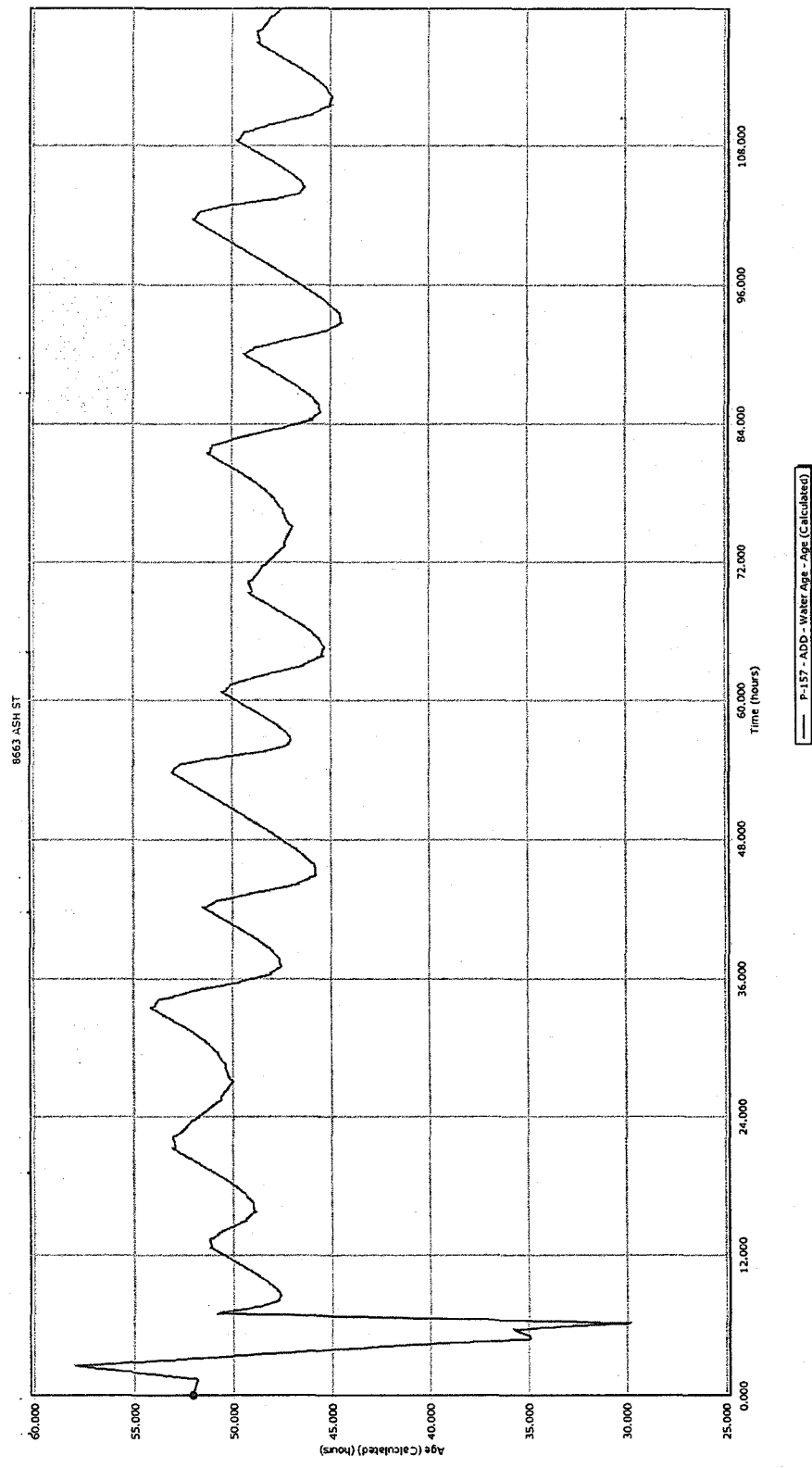


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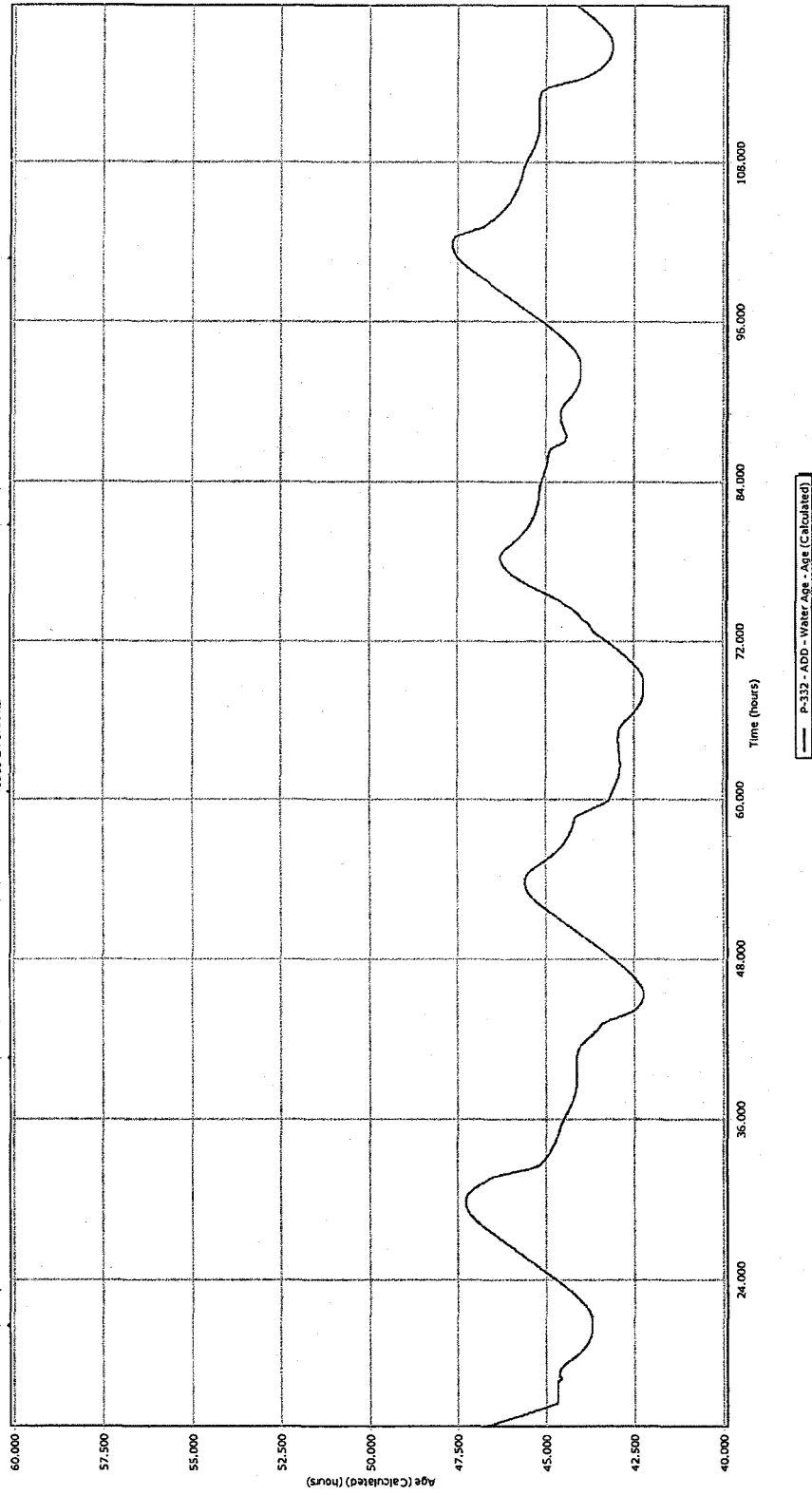


1430 COMM. ST.

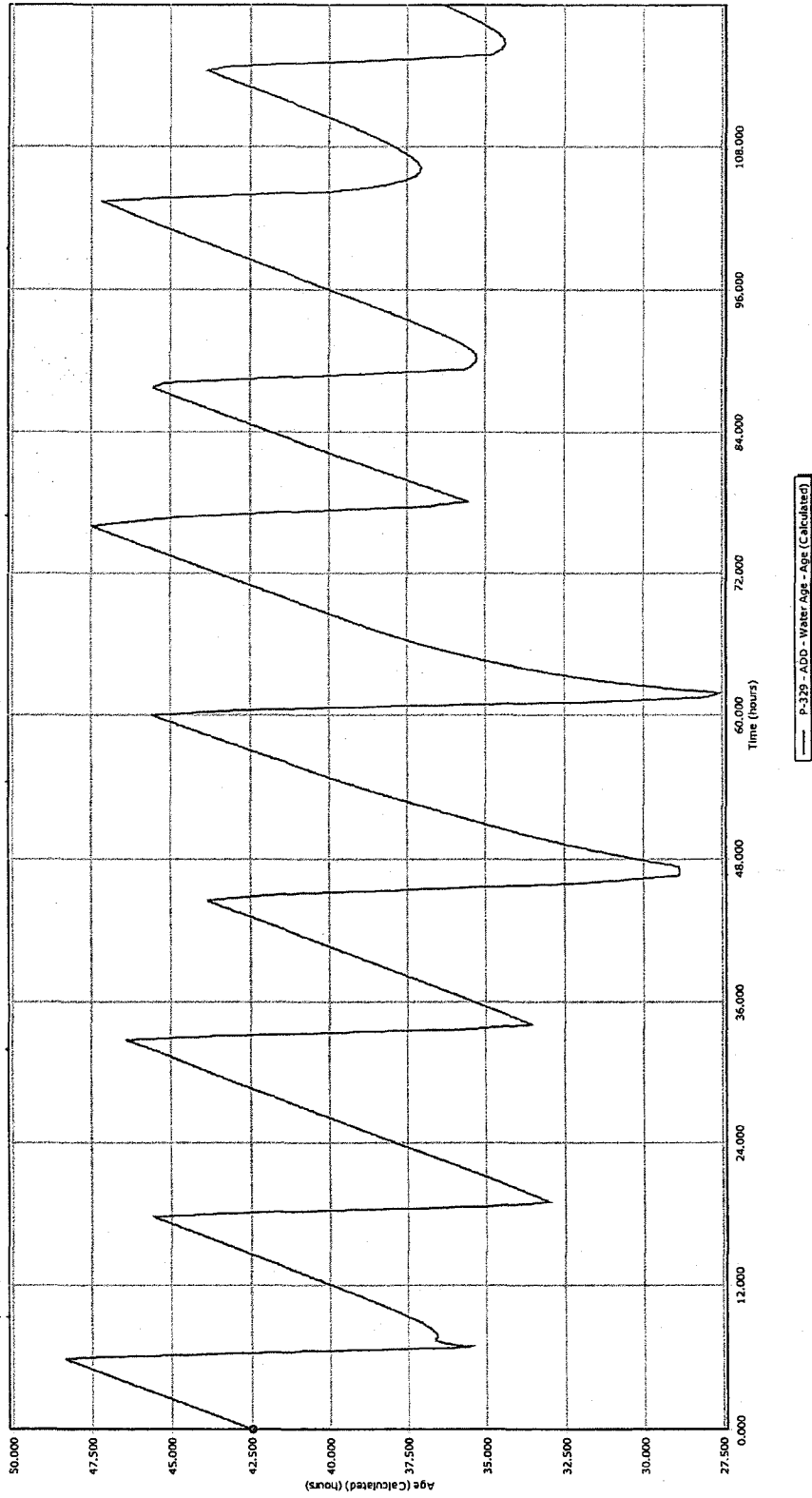




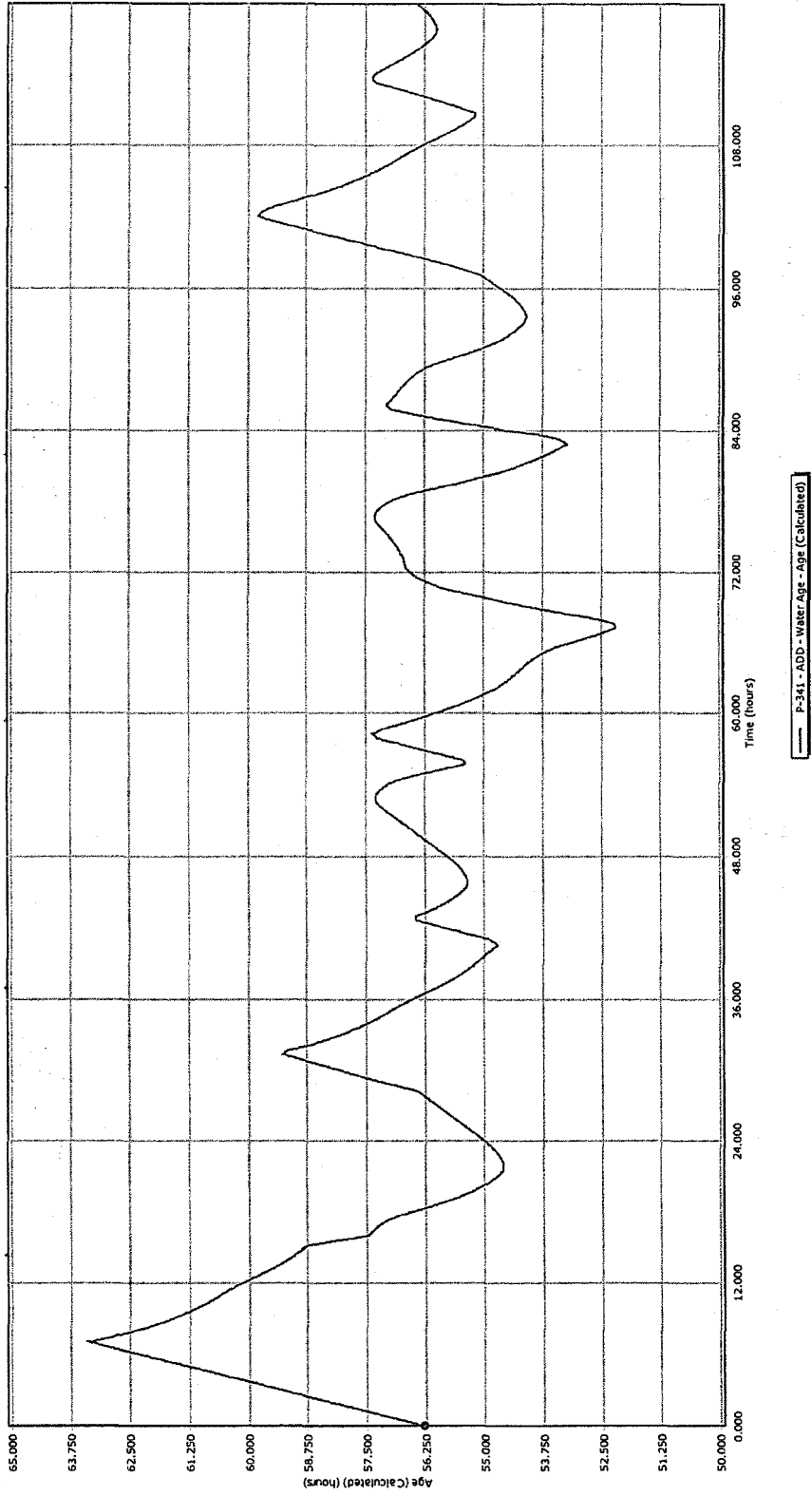
1566 E PUMA RD



1648 E VALLEY PKWY



1770 E BMLY DR



Appendix C - Detailed 20-year CIP Plan Calculations

	BUDGET	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
\$125,000 \$	125,000 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$9,000 \$	- \$	9,000 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$775,720 \$	- \$	775,720 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$775,720 \$	- \$	775,720 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$886,400 \$	- \$	- \$	886,400 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$989,360 \$	- \$	- \$	989,360 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$
\$3,561,200 \$	125,000 \$	1,560,440 \$	1,875,760 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$

\$178,060.00

Budget Projected Year

\$125,000	2,011
\$134,000	2,012
\$909,720	2,012
\$1,685,440	2,012
\$2,571,840	2,013
\$3,561,200	2,013

Valve Replacement Costs

20-Year Capital Improvements Plan

Feb-11

Pipe Diameter	King Street	Unit 17	Commercial Street	Cimmaron	Total Number of Valves	Cost Per Valve	Total Replacement Cost
4-inch			9		9	\$ 1,000	\$ 9,000
6-inch					0	\$ 1,200	\$ -
8-inch					0	\$ 1,500	\$ -
10-inch					0	\$ 2,000	\$ -
12-inch					0	\$ 2,500	\$ -
						Grand Total: \$	9,000

Water Mains Replacement Costs
20-Year Capital Improvements Plan
Feb-11

Pipe Diameter	King Street	Unit 17	Commercial Street	Cimmaron	Total Length of Pipe	Cost Per Foot	Total Replacement Cost
4-inch	33754	22160	18098		74012	\$ 40	\$ 2,960,480
6-inch	5032		6011		11043	\$ 40	\$ 441,720
8-inch			500		500	\$ 50	\$ 25,000
Grand Total: \$							\$ 3,427,200

Water Mains Replacement Costs (Per Service Area)
20-Year Capital Improvements Plan
Feb-11

Pipe Diameter	King Street	Unit 17	Commercial Street	Cimmaron
4-inch	\$ 1,350,160	\$ 886,400	\$ 723,920	\$ -
6-inch	\$ 201,280	\$ -	\$ 240,440	\$ -
8-inch	\$ -	\$ -	\$ 25,000	\$ -
Total	\$ 1,551,440	\$ 886,400	\$ 989,360	\$ -

Attachment

"4"

Company:

Global Water – Santa Cruz Water Company
Global Water – Palo Verde Utilities Company
Valencia Water Company – Town Division,
Valencia Water Company – Greater Buckeye Division,
Water Utility of Greater Tonopah,
Water Utility of Northern Scottsdale
Willow Valley Water Company

Decision No.: _____**Phone:** 623-518-4000**Effective Date:** _____**TERMS AND CONDITIONS OF SERVICE TARIFF**

- 1.0 Applicability.** This Terms and Conditions of Service Tariff applies to all services provided by the Company.
- 2.0 Adoption of Rules.** For potable water service, the Company adopts the Rules of the Arizona Corporation Commission for water service (A.A.C. R14-2-401 to R14-2-410), as supplemented by this Tariff. For wastewater service, the Company adopts the Rules of the Arizona Corporation Commission for wastewater service (A.A.C. R14-2-601 to R14-2-610), as supplemented by this Tariff.
- 3.0 Special provisions for recycled water service.** "Non-potable water service" includes recycled water service (also known as reclaimed water service) as well as any other non-potable water provided by the Company (such as untreated groundwater). The following provisions apply to non-potable water service.
 - 3.1 Establishment of service.** Establishment of non-potable water service will be in accordance with A.A.C. R14-2-403.
 - 3.2 Customer information.** The Company will provide the information to non-potable water customers as required in R14-2-404.
 - 3.3 Main extensions.** Main extensions for non-potable water service will be subject to the requirements of A.A.C. R14-2-606.
 - 3.4 Provision of Service.** Non-potable water service will be subject to the requirements of A.A.C. R14-2-407, except that R14-2-407(E), Minimum Deliver Pressure shall not apply, because non-potable water is a unpressurized service.
 - 3.5 Meter reading.** Meter reading for non-potable water service will be subject to the requirements of A.A.C. R14-2-408.
 - 3.6 Billing.** Billing and collection for non-potable water service will be subject to the requirements of A.A.C. R14-2-608.

Company:

Global Water – Santa Cruz Water Company
Global Water – Palo Verde Utilities Company
Valencia Water Company – Town Division,
Valencia Water Company – Greater Buckeye Division,
Water Utility of Greater Tonopah,
Water Utility of Northern Scottsdale
Willow Valley Water Company

Decision No.: _____**Phone:** 623-518-4000**Effective Date:** _____**TERMS AND CONDITIONS OF SERVICE TARIFF**

3.7 Termination of service. Termination of service for non-potable water service will be subject to the requirements of A.A.C. R14-2-609.

4.0 Electronic Billing. Electronic Billing is an optional billing service whereby Customers may elect to receive, view, and pay their bills electronically. The Company may modify its Electronic Billing services from time to time. A Customer electing an electronic billing service may receive an electronic bill in lieu of a paper bill. Customers electing an electronic billing service may be required to complete additional forms and agreements. Electronic Billing may be discontinued at any time by the Company or the Customer. An Electronic Bill will be considered rendered at the time it is electronically sent to the Customer. Failure to receive bills or notices which have been properly sent by an Electronic Billing system does not prevent these bills from becoming delinquent and does not relieve the Customer of the Customer's obligations therein. Any notices which the Company is required to send to a Customer who has elected an Electronic Billing service may be sent by electronic means at the option of the Company. Except as otherwise provided in this section, all other provisions of the Company's tariffs and the Commission's Rules and Regulations are applicable to Electronic Billing. The Customer must provide the Company with a current email address for electronic bill delivery. If the Electronic Bill is electronically sent to the Customer at the email address that Customer provided to the Company, then the Electronic Bill will be considered properly sent. Further, the Customer will be responsible for updating the Company with any changes to this email address. Failure to do so will not excuse the Customer from timely paying the Company for utility service.

5.0 Liability.

5.1 Water pressure. The Company will supply only such water at such pressures as may be available from time to time as a result of the normal operation of its water system. The Company does not guarantee a specific water pressure or gallons per minute flow rate at any public fire hydrant or private fire service. In the event service is interrupted or irregular or defective or fails from causes beyond the Company's control or through

Company:

Global Water – Santa Cruz Water Company
Global Water – Palo Verde Utilities Company
Valencia Water Company – Town Division,
Valencia Water Company – Greater Buckeye Division,
Water Utility of Greater Tonopah,
Water Utility of Northern Scottsdale
Willow Valley Water Company

Decision No.: _____**Phone:** 623-518-4000**Effective Date:** _____**TERMS AND CONDITIONS OF SERVICE TARIFF**

ordinary negligence of its employees or agents, the Company will not be liable for any injuries or damages arising therefrom.

- 5.2 Limitation of Company responsibility.** The Company does not assume the responsibility of inspecting or maintaining any customer's piping or apparatus and will not be responsible therefor; however, the Company reserves the right to refuse water service unless the customer's piping or apparatus is installed in such manner as to prevent cross connections or backflow into the Company's system in compliance with the Company's tariffs as approved by the Commission.
- 5.3 Third party claims.** Company will not be responsible for any third-party claims against Company that arise from Customer's use of Company's utility service.
- 5.4 Indemnity.** Customer will indemnify, defend and hold harmless the Company (including the costs of reasonable attorney's fees) against all claims (including, without limitation, claims for damages to any business or property, or injury to, or death of, any person) arising out of any act or omission of the Customer, or the Customer's agents, in connection with the Company's service or facilities.
- 5.5 Limitation of damages.** The liability of the Company for damages of any nature arising from errors, mistakes, omissions, interruptions, or delays of the Company, its agents, servants, or employees, in the course of establishing, furnishing, rearranging, moving, terminating, or changing the service or facilities or equipment shall not exceed an amount equal to the charges applicable under the Company's tariff (calculated on a proportionate basis where appropriate) to the period during which the error, mistake, omission, interruption or delay occurs.
- 5.6 Incidental, indirect, special, or consequential damages.** In no event will the Company be liable for any incidental, indirect, special, or consequential damages (including lost revenue or profits) of any kind whatsoever regardless of the cause or foreseeability thereof.

Company:

Global Water – Santa Cruz Water Company
Global Water – Palo Verde Utilities Company
Valencia Water Company –Town Division,
Valencia Water Company – Greater Buckeye Division,
Water Utility of Greater Tonopah,
Water Utility of Northern Scottsdale
Willow Valley Water Company

Decision No.: _____**Phone:** 623-518-4000**Effective Date:** _____**TERMS AND CONDITIONS OF SERVICE TARIFF**

- 5.7 Interference with Company facilities.** The Company will not be responsible in an occasion for any loss or damage caused by the negligence or wrongful act of the Customer or any of his agents, employees or licensees in installing, maintaining, using, operating or interfering with any Company facilities.

Attachment

"5"

ORIGINAL



0000120809

BEFORE THE ARIZONA CORPORATION COMMISSION
RECEIVED

COMMISSIONERS

KRISTIN K. MAYES, Chairman
GARY PIERCE
PAUL NEWMAN
SANDRA D. KENNEDY
BOB STUMP

2010 DEC 14 P 3:44
AZ CORP COMMISSION
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER - PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF JUST AND
REASONABLE RATES AND CHARGES FOR UTILITY
SERVICE DESIGNED TO REALIZE A REASONABLE
RATE OF RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF ARIZONA

DOCKET NO. SW-20445A-09-0077

IN THE MATTER OF THE APPLICATION OF
VALENCIA WATER COMPANY - GREATER
BUCKEYE DIVISION FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND CHARGES FOR
UTILITY SERVICE DESIGNED TO REALIZE A
REASONABLE RATE OF RETURN ON THE FAIR
VALUE OF ITS PROPERTY THROUGHOUT THE
STATE OF ARIZONA

DOCKET NO. W-02451A-09-0078

IN THE MATTER OF THE APPLICATION OF
WILLOW VALLEY WATER CO. FOR THE
ESTABLISHMENT OF JUST AND REASONABLE
RATES AND CHARGES FOR UTILITY SERVICE
DESIGNED TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS PROPERTY
THROUGHOUT THE STATE OF ARIZONA

DOCKET NO. W-01732A-09-0079

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER - SANTA CRUZ WATER COMPANY
FOR THE ESTABLISHMENT OF JUST AND
REASONABLE RATES AND CHARGES FOR UTILITY
SERVICE DESIGNED TO REALIZE A REASONABLE
RATE OF RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF ARIZONA

DOCKET NO. W-20446A-09-0080

IN THE MATTER OF THE APPLICATION OF
WATER UTILITY OF GREATER TONOPAH FOR
THE ESTABLISHMENT OF JUST AND REASONABLE
RATES AND CHARGES FOR UTILITY SERVICE
DESIGNED TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS PROPERTY
THROUGHOUT THE STATE OF ARIZONA

DOCKET NO. W-02450A-09-0081

Notice of Filing Compliance
(Decision No. 71878)

Arizona Corporation Commission
DOCKETED

DEC 14 2010

DOCKETED BY

[Signature]

1 IN THE MATTER OF THE APPLICATION OF
2 VALENCIA WATER COMPANY – TOWN DIVISION
3 FOR THE ESTABLISHMENT OF JUST AND
4 REASONABLE RATES AND CHARGES FOR UTILITY
5 SERVICE DESIGNED TO REALIZE A REASONABLE
6 RATE OF RETURN ON THE FAIR VALUE OF ITS
7 PROPERTY THROUGHOUT THE STATE OF ARIZONA

DOCKET NO. W-01212A-09-0082

**Notice of Filing Compliance
(Decision No. 71878)**

8 Decision No. 71878 (September 15, 2010) requires Willow Valley Water Company, Valencia
9 Water Company – Greater Buckeye and Water Utility Tonopah (collectively the “Global Utilities”), to file
10 within 90 days, as a compliance item with the Commission's Docket Control, a detailed plan
11 demonstrating how the various systems will reduce their water loss to less than 10 percent.
12 Accordingly, the Global Utilities file their plan for reducing water loss to 10% for the relevant water
13 systems.

14 RESPECTFULLY SUBMITTED this 14th day of December 2010.

15 ROSHKA DEWULF & PATTEN, PLC

16 By Timothy J. Sabo
17 Michael W. Patten
18 Timothy J. Sabo
19 One Arizona Center
20 400 East Van Buren Street, Suite 800
21 Phoenix, Arizona 85004

Attorneys for Global Utilities

22
23 Original +13 copies of the foregoing
24 filed this 14th day of December 2010, with:

25 Docket Control
26 Arizona Corporation Commission
27 1200 West Washington
Phoenix, AZ 85007

1 Copies of the foregoing hand-delivered/mailed
2 this 14th day of December 2010, to:

3 Lyn A. Farmer, Esq.
4 Chief Administrative Law Judge
5 Hearing Division
6 Arizona Corporation Commission
7 1200 West Washington
8 Phoenix, AZ 85007

9 Janice Alward, Esq.
10 Chief Counsel, Legal Division
11 Arizona Corporation Commission
12 1200 West Washington
13 Phoenix, AZ 85007

14 Mr. Steve Olea
15 Director, Utilities Division
16 Arizona Corporation Commission
17 1200 West Washington
18 Phoenix, AZ 85007

19 Brian Bozzo
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21 Utilities Division
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25 By Rebbie Amara

Water Loss Compliance Report
Docket No. W-20445A-09-0077 et al; Decision No. 71878

In compliance with the Arizona Corporation Commission's (Commission) Decision No. 71878, Global Water (Global) hereby files a plan for reducing water loss to below 10 percent in the following Global Utilities' Public Water Systems (PWS):

Willow Valley Water Company (Willow Valley)

- 08-129 Lake Cimarron
- 08-040 King Street

Valencia Water Company – Greater Buckeye Division (Greater Buckeye)

- 07-195 Sun Valley/Sweetwater I
- 07-129 Sweetwater II

Water Utility of Greater Tonopah (Greater Tonopah)

- 07-618 Buckeye Ranch
- 07-030 Dixie
- 07-733 West Phoenix Estates #6
- 07-617 Tufte
- 07-037 Garden City
- West Phoenix Estates #1

The Decision requires that if the Utility finds a reduction of water loss to less than 10 percent is not cost effective in a system, it shall file a detailed cost analysis and explanation of this determination. The Commission ordered that in any event, water loss shall not exceed 15 percent.

The following is Global's plan to reduce water loss, or unaccounted-for-water, to less than 10 percent for each individual PWS.

Global continues to believe that the blanket application of a percentage-based water loss metric does not fairly represent the actual state of a system, and that other methods for analyzing water loss that are more applicable to the specific characteristics of a PWS, such as Gallon Per Hour Per Mile Per Inch (GPHMI) and Unavoidable Annual Real Losses (UARL), as detailed in the Global's Rebuttal testimony on this matter¹.

For the purposes of this plan Global will calculate unaccounted-for-water in the following manner, which is an accepted AWWA and industry standard.

((Volume of Water Supplied - (Volume of Customer Billed Water + Volume of Authorized Usage))

(Volume of Water Supplied)

¹ Docket No. SW-20445A-09-0077 et al, Rebuttal Testimony of Graham Symmonds, 20 November 2009, pp 23-31.

In developing this plan, Global is using a holistic approach that includes:

- Improvements to metering accuracy;
- Commissioning of audits and inspections;
- Implementing theft prevention programs; and
- Implementing leak detection programs.

OVERVIEW

On acquisition of the West Maricopa Combine (WMC) utilities², Global's focus was on ensuring the systems were upgraded to meet compliance with the new arsenic MCL, installation of chlorination systems, and rectifying other water quality, compliance, and reliability issues. As a small undercapitalized utility, WMC had taken a back-seat to operational efficiency and compliance activities. The result was there were numerous issues requiring immediate rectification by Global.

On completion of that work, Global began to review the systems and infrastructure from the perspective of water loss, led by Global's Water Loss Task Force (Task Force).

Key improvements made include:

1. Replacement of antiquated meters in Greater Tonopah and Greater Buckeye (2008)
2. Replacement of antiquated meters in Willow Valley (2010)

WATER LOSS MITIGATION PLAN

The Global Water Task Force is charged with developing and executing a program to reduce unaccounted-for-water by focusing on: data and reporting (including documentation of water used for flushing and backwash activities); meter accuracy; audits; inspections; theft prevention; and leak detection and repair. The Task Force consists of managers, supervisors and certified operators who have the experience and expertise to correct water loss issues. In the following sections, we review the progress made on these concepts, all of which have been employed for each PWS.

Data and Reporting Accuracy

Global employs water accounting as a routine business practice, producing monthly reports to track water use for each Utility.

² WMC consisted of Willow Valley Water Company, Valencia Water Company (now Valencia Water Company – Town Division), Water Utility of Greater Buckeye (now Valencia Water Company – Greater Buckeye Division), Water Utility of Greater Tonopah, and Water Utility of Northern Scottsdale.

Throughout 2010, Global implemented improved water accounting processes focused on ensuring the data is precise. This has been accomplished by leveraging numerous technology platforms Global deployed in our Utilities over the past several years. Global monitors the following parameters:

- Volume of Water Distributed - generated via facility checks and rounds data (stored in the Inframap water management system). This application allows Operators to enter production meter reads directly into an electronic system for continuous monitoring and reporting. When possible, we take the production meter reads directly from the Supervisory Control and Data Acquisition (SCADA) system, which monitors production meters real-time.
- Volume of Water Billed – this data is generated from our automated meter reading (AMR) system or through our customer information system. This information is augmented by the following automated reports:
 - Exception Reporting – Unusual usage patterns are flagged during routine reporting. These accounts are investigated, including field checks as necessary.
 - Zero Usage Reporting - For all active accounts that have zero usage for more than a single billing period, we issue a field investigation service order.
 - Manual reads and checks – When the AMR systems do not capture a read, it is Global's policy to issue a manual read service order to prevent estimated or zero usage reads.
 - AMR Alerts and Reports - The AMR systems themselves indicate many different failure or alert conditions. For example, we utilize the Tamper or No Read reports for when the radio modules do not receive a read from the meter. This error results in an immediate field investigation service order.
- Authorized Usage – this represents primarily internal Utility usage. These volumes are captured within our Cityworks work order management system.

These automated systems are combined to create a monthly Water Balance for each PWS. The result of this effort is more accurate, meaningful and actionable data available at exact intervals. This will also assist us in determining the effectiveness of the actions described in the following sections.

Metering Accuracy

As discussed, all PWS referenced in this report have new customer point-of-sale meters. The new meters comply with all performance and material standards per AWWA standard C701, and were tested and certified by the manufacturer prior to delivery. Global will implement a meter testing program at the appropriate times for the new meters as they begin to age, in accordance with industry standards for meter size and type.

It is very important that the Utility's production meters also remain accurate. Each production meter is scheduled for testing, repair and calibration, or replacement in 2011. This program of continuous maintenance will continue annually.

Audits

As part of the mitigation plan and due to some usage inconsistencies for several large diameter commercial customers, we recently executed an audit of certain meter classes including their settings in the associated billing systems. During this audit, we identified numerous accounts that had incorrect usage multipliers established at the date of meter install. These multipliers were off by a factor, and thus were only calculating 10 percent of actual usage for these customers. The multipliers have been corrected for the accounts identified.

We will continue to audit all systems, verifying all accounts have the correct metering information, including the correct number of dials and the correct multipliers in the AMR and billing systems.

Inspections

Operations personnel have physically walked the waterline routes for the Greater Tonopah and Greater Buckeye systems, inspecting for visual indications of leaks. At all locations where leakage was evident, the pipeline has been or will be repaired.

Operations personnel also visually inspected all plant facilities, including tankage and mechanical piping, ensuring there is no on-site water loss.

Theft Prevention

Due to the remote location and sparse population, systems in Greater Tonopah and Greater Buckeye are prone to water theft. This issue is difficult to eliminate, but while elimination is impossible, control becomes necessary. Global is implementing the following measures to control water theft:

- Inspection for illegal taps or bypassed meters during distribution system inspections;
- Removal of all unnecessary access points; and
- Installation of hydrant locks on secluded fire hydrants.

Leak Detection

Global Water may choose to employ leak detection, but this would require the procurement of the necessary equipment or professional services. If leak detection ultimately becomes necessary to reduce water loss to less than 10 percent, Global will complete individual cost-benefit analyses for each PWS.

IMPACTS OF THE TO-DATE ACTIVITIES FOR EACH PWS

The following tables indicate the improvements made in reducing water loss when comparing the most recent 12 month period, to the 2008 Water Use Data provided during the rate proceeding³. These reductions were accomplished by the execution of the mitigation plan as developed by the Water Loss

³ See attachment A for an expanded spreadsheet which includes the specific pumped and sold volumes for each PWS for the periods indicated

Task Force. Global has expended significant labor hours for the in-field activities, which resulted in the following repair work in 2010, for the indicated geographical locations.

Willow Valley

08-129 Lake Cimmaron					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
23.4%	12.9%	-10.5%	1,585	19,204	131

- Replaced all customer meters in 2010.
- 14 curb stop valves were replaced as a result of malfunctions and leaks during the meter replacement project.

08-040 King St					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
20.2%	19.5%	-0.7%	20,307	103,294	1484

- Replaced all customer meters in 2010.
- 211 curb stop valves were replaced as a result of malfunctions and leaks during the meter replacement project.
- 14 service lines were repaired due to leaks located between the service saddle and the water main.
- 12 main line leaks were repaired⁴.

Greater Buckeye

07-129 Sweetwater II (1)					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
12.9%	2.9%	-10.0%	335	14,518	95

- Replaced all customer meters in 2008.
- 4 main line repairs resulting from system inspections.
- 5 service line repairs resulting from service and meter box inspections.

⁴ Based on the local geological conditions, water does not tend to surface easily in Willow Valley. It is not until a considerable leak occurs that it can be identified via typical ground inspections.

07-195 Sun Valley					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
19.0%	2.1%	-16.8%	948	107,610	420

- Replaced all customer meters in 2008.
- 36 main line repairs resulting from system inspections.
- 3 hydrants identified where water theft is evident. We will install hydrant locks.

Greater Tonopah

07-618 Buckeye Ranch					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
10.1%	13.9%	3.8%	1,437	47,643	99

- Replaced all customer meters in 2008.
- 3 main line repairs resulting from system inspections.
- 4 service line repairs resulting from service and meter box inspections.
- 2 hydrants identified where water theft is evident. We will install hydrant locks.

07-030 Dixie					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
28.9%	3.6%	-25.3%	122	17,567	41

- Replaced all customer meters in 2008.
- Discovered and removed two illegal connections.

07-733 WPE 6					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
30.5%	18.4%	-12.1%	351	47,647	30

- Replaced all customer meters in 2008.
- 2 main line repairs resulting from system inspections.
- Repaired leaking storage tank.

07-617 Tuffe					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
13.6%	17.6%	4.0%	75	4,937	7

- Replaced all customer meters in 2008.
- 2 main line repairs resulting from system inspections.
- Identified location of water theft from a "blow-off", we will remove appurtenance.
- Discovered leaking valves on distribution mains, repairs are being scheduled.
- Discovered leaking hydro-pneumatic tank, repairs are being scheduled.

07-037 Garden City					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
23.4%	19.4%	-4.0%	450	20,220	18

- Replaced all customer meters in 2008.
- 1 main line repair resulting from system inspections.
- Discovered and repaired leaking ground storage tank.
- Discovered unmetered hydrant regularly used by local fire department, this usage is now being collected.

WPR #1					
2008 Loss	2010 Loss	Delta	Gallons lost (1000s)	LF of pipe	Connections
31.5%	12.5%	-19.0%	48	33,106	8

- Replaced all customer meters in 2008.
- Standpipe leak discovered and isolated until repairs can be completed.
- Isolated unused portions of system.

CONCLUSION

Global is committed to implementing best management practices to minimize water loss, and our effort to-date has been successful in reducing water loss in almost every PWS, including reducing both systems in Greater Buckeye to well below 10 percent. As many of the listed actions have been implemented over 2010, the water loss percentages in the other PWS will continue to decrease throughout 2011. Thus, we believe that the continued execution of the comprehensive plan will further reduce unaccounted-for-water, ultimately achieving less than or near the 10 percent requirement in all systems.

Global will complete the routine and minor repair and testing activities indentified in the plan. If this plan is unsuccessful in achieving a water loss of 10 percent, a significant investment would be required

for the replacement of pipeline and plant infrastructure - resulting in significant rate increases for customers in smaller communities.

Based on the negative rate base in Greater Tonopah, such an investment would never be cost effective. For Willow Valley, as we have not completed nor fully realized the impacts of the above activities, most significantly the recently completed meter replacement project, we cannot yet determine if additional investments are necessary or would be cost effective to achieve less than 10 percent water loss for those PWS. Such cost analysis and explanations will be submitted to the Commission upon that determination. It is important to note that Global is currently completing a Technical Engineering Study on the Willow Valley distribution system. This study will serve as the basis for a long-term pipeline replacement program.

Exhibit A

* in thousands

Utility	2008					
PWS	pumped *	sold *	% of water loss	pumped *	sold *	DELTA
Willow Valley Water Company						
08-129 Lake Cimmaron	12,307	10,722	12.9%	13,543	10,379	23.4%
08-040 King St	103,956	83,649	19.5%	115,312	91,995	20.2%
Valencia Water Company - Greater Buckeye Division						
07-195 Sun Valley	44,294	43,346	2.1%	48,210	39,057	19.0%
07-129 Sweetwater II (1)	11,370	11,035	2.9%	13,305	11,586	12.9%
Water Utility of Great Tonopah						
07-618 Buckeye Ranch	10,304	8,867	13.9%	13,929	12,521	10.1%
07-030 Dixie	3,394	3,272	3.6%	5,656	4,023	28.9%
07-733 WPE 6	1,909	1,558	18.4%	2,530	1,758	30.5%
07-617 Tufte	428	353	17.6%	514	444	13.6%
07-037 Garden City	2,323	1,873	19.4%	2,560	1,960	23.4%
WPE #1	384	336	12.5%	499	342	31.5%

(1) PWS is supplied via interconnect with the City of Goodyear, thus water supplied equals water received and is measured by a meter at the point of delivery to our PWS.

Xerox 4112
Banner Sheet

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Date & Time : 09/04/2013 12:58 PM

User Name :

rautrey

Job Name : Microsoft Word - Current Working Matters

Start Page

PJR's Current Working Matters

1stGlobal.Biedes (Jennifer/Joyce)
Tentative Mediation date 10/31/13
Arbitration Dates: 02/10/14 – 02/14/14

BrownL.Chasson
(Lewis Brown and Eric Brown)

ER Financial.ACC (Tim/Katie)

Fierra.BVAA

Foothill.FINRA

Ives.Planning and Johnson litigation (Tim/Katie)

Mellberg.ACC

Mellberg.Advanced (Tim/Katie)

Michaelis.Wright

Nickel.Phillips

PB.Henrichs (Tim)

PB.Russell.Brunst (Joyce)

PMI (Tim)

Rommel.WellsFargo (Jennifer)

Sargent.ACC (Tim)

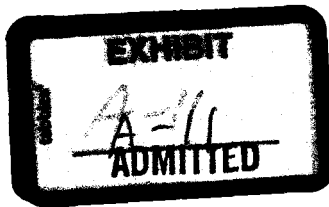
Sawyer.Felix (Paul-expert)
(Attorney Stoops)
(Trial dates have not been set yet.)

ScottsdaleCap.FINRA2

Sonnenschein.PaloVerde (Jennifer)

Taplin.ACC (Tim)

UltraElectronics.OAS (Tim/Katie)



1 THE ARIZONA CORPORATION COMMISSION

2 COMMISSIONERS

GARY PIERCE, Chairman

3 BOB STUMP

SANDRA D. KENNEDY

4 PAUL NEWMAN

BRENDA BURNS

5
6 IN THE MATTER OF THE APPLICATION OF
7 GLOBAL WATER – PALO VERDE UTILITIES
8 COMPANY FOR THE ESTABLISHMENT OF
9 JUST AND REASONABLE RATES AND
10 CHARGES FOR UTILITY SERVICE DESIGNED
11 TO REALIZE A REASONABLE RATE OF
12 RETURN ON THE FAIR VALUE OF ITS
13 PROPERTY THROUGHOUT THE STATE OF
14 ARIZONA.

DOCKET NO. SW-03575A-12-_____

15 Direct Testimony

16 of

17 Brett Higginbotham, CPA

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19 July 9, 2012
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1 **I. Introduction.**

2 **Q. Please state your name and business address.**

3 A. My name is Brett Higginbotham. My business address is 21410 North 19th Avenue, Suite
4 201, Phoenix, Arizona 85027.

5
6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Global Water Management, Inc. as Controller. I also serve as the
8 Controller of Global Water Resources, Inc.

9
10 **Q. Briefly describe your responsibilities as Global Water's controller.**

11 A. I am responsible for managing the company's accounting and financial reporting
12 functions.

13
14 **Q. Please describe your qualifications.**

15 A. I am a Certified Public Accountant (CPA) licensed in Arizona (#13105). In 1999, I earned
16 a Bachelor of Science and a Master's Degree in Accountancy from Brigham Young
17 University.

18
19 I joined Global as Controller in 2010. Prior to joining Global, I was a senior manager with
20 PricewaterhouseCoopers (PwC), a global public accounting firm. There, I was primarily
21 responsible for managing financial statement audit engagements for clients such as Amkor
22 Technology, Inc.- one of the world's largest providers of advanced semiconductor
23 assembly and test services. Other former clients include Honeywell, Disney, Raytheon,
24 Tekelec, and Digital Theater Systems. I have nearly 10 years of experience with the "Big
25 4" accounting firm, having served a diverse set of industries. I have experience in
26 technical accounting, revenue recognition, financial statement analysis, financial reporting,
27 Sarbanes-Oxley (SOX) internal control policies and procedures, systems implementations,

1 budgeting and cross-functional team management.

2
3 **II. Rate Base Adjustments.**

4 **Q. Please describe Global's rate base adjustment #1 – Post Test Year Plant.**

5 A. Rate base adjustment # 1 represents post-test year plant. The post-test year plant is
6 described in Mr. Fleming's Direct Testimony. He also explains why the post-test year
7 plant should be included in rate base. The amount of Post-Test Year Plant of each utility is
8 as follows:

9	Santa Cruz	\$306,892
10	Palo Verde	\$818,395
11	Valencia – Town Division	\$672,571
12	Valencia – Greater Buckeye Division	\$ 0
13	Water Utility of Greater Tonopah	\$106,782
14	Willow Valley	\$ 80,436
15	Northern Scottsdale	\$ 0

16
17 **Q. Please describe Global's rate base adjustment #2 – ICFA CIAC Imputation on**
18 **Construction-Work-In-Process.**

19 A. As a result of Global's last rate case, funds received under Infrastructure Finance and
20 Coordination Agreements (ICFAs) are accounted for as Contributions in Aid of
21 Construction (CIAC). CIAC naturally has the effect of decreasing rate base, similar to
22 Advances in Aid of Construction (AIAC). In Global's last rate case, a portion of the ICFA
23 funds were attributed by the Commission toward construction work in process (CWIP).
24 The CWIP portion of ICFA funds did not get imputed as a reduction to rate base since the
25 CWIP assets were not in service and not included in rate base. Accordingly, rate base
26 adjustment #2 represents the portion of ICFA funds recorded as CIAC but attributed to
27 CWIP. This adjustment consists of removing the CWIP portion of ICFA CIAC from total

1 CIAC so that the CWIP portion of ICFA CIAC does not reduce rate base.

2
3 This adjustment also contains a corresponding decrease in the deferred tax asset that arose
4 as a result of the Company accounting for ICFA funds as CIAC. The deferred tax asset on
5 the books, as well as the rate base adjustment amounts to 38.7% (Global's effective
6 income tax rate) of the CIAC amount. Mr. Rowell explains the deferred tax asset in his
7 Direct Testimony.

8
9 **Q. Please describe Global's rate base adjustment #3 – ICFA CIAC Imputation on Plant**
10 **in Service.**

11 **A.** Similar to rate base adjustment #2 above, rate base adjustment #3 also relates to ICFA
12 funds recorded in Global's books as CIAC. Rate base adjustment #3 represents the amount
13 for ICFA CIAC attributed to plant in service pursuant to the decision of Global's last rate
14 case. As discussed Mr. Walker's Direct Testimony, Global requests that no ICFA funds be
15 imputed as a reduction to rate base. Accordingly, this adjustment effectively eliminates the
16 ICFA CIAC that would otherwise result in an imputed reduction to rate base.

17
18 This adjustment also contains a corresponding decrease in the deferred tax asset that arose
19 as a result of the Company accounting for ICFA funds as CIAC. The deferred tax asset on
20 the books, as well as the rate base adjustment amounts to 38.7% (Global's effective
21 income tax rate) of the CIAC amount. As noted above, Mr. Rowell addresses the deferred
22 tax asset in his Direct Testimony.

23
24 **III. Income Statement Adjustments.**

25 **Q. Please describe Global's income statement adjustment # 1 – 2008 Rate Case Costs**

26 **A.** In Global's last rate case, the Commission decided that Global could recover the
27 requested \$400,000 of costs which the Company incurred related to that rate case. This

1 \$400,000 is being amortized over a three year period. Accordingly, approximately
2 \$133,333 was recorded as expense during the 2011 test year on the books of the Global
3 utilities affected by the last rate case (allocated among the utilities in a systematic
4 manner). We assume that once the \$400,000 is completely amortized, the costs will not
5 be recurring on a go-forward basis.

6
7 Accordingly, income statement adjustment #1 removes these prior rate case costs from
8 operating expenses of the utilities. By the time new rates provided by this rate case are
9 effective, the \$400,000 will have been fully amortized. The amount removed from
10 operating expenses of each utility is as follows:

11	Santa Cruz	(\$53,333)
12	Palo Verde	(\$53,333)
13	Valencia – Town Division	(\$18,667)
14	Valencia – Greater Buckeye Division	(\$ 1,333)
15	Water Utility of Greater Tonopah	(\$ 1,333)
16	Willow Valley	(\$ 5,333)

17
18 **Q. Please describe Global's income statement adjustment #2 – 2011 Rate Case Costs.**

19 **A.** Similar to income statement adjustment #1, income statement adjustment #2 relates to
20 costs Global has and will incur in connection with the filing the current rate case. Such
21 costs primarily consist of legal and advisory costs incurred in preparation of this rate
22 case. Global currently estimates such costs will approximate \$787,174.

23
24 The amount added to operating expenses of each utility is as follows:

25	Santa Cruz	\$105,801
26	Palo Verde	\$104,585
27	Valencia – Town Division	\$35,298

1	Valencia – Greater Buckeye Division	\$ 4,142
2	Water Utility of Greater Tonopah	\$ 2,140
3	Willow Valley	\$ 9,923
4	Northern Scottsdale	\$ 502

5
6 Global will allocate the rate case costs to its operating utilities proportionally based on
7 the number of active service connections. The rate case costs will be amortized as an
8 operating expense over a three year period.

9
10 **Q. Please describe Global's income statement adjustment #3 – Low Income Relief Tariff.**

11 **A.** Global's last rate case provided a mechanism to provide financial support to low income
12 rate payers, the Low Income Relief Tariff (the "LIRT"). The LIRT is funded equally by
13 Global's shareholders and Global's customers through a monthly customer surcharge and
14 an equal match by Global. The LIRP is capped at \$100,000 total annual funding
15 (shareholder and customer funds). The initial monthly LIRT surcharge was calculated as
16 \$0.11 per month, per connection. Collection of the LIRT began in August 2011 in
17 accordance with Decision No. 72440 (June 27, 2011).

18
19 For accounting purposes, Global records the shareholder match as an expense on the
20 books of Global's utilities. However, since the matching funds provided by Global are
21 intended to come from shareholders rather than customers, it would not be appropriate for
22 Global to recover the match portion through rates. Accordingly, income statement
23 adjustment #3 removes the amount of Global's matching LIRT contributions from
24 operating expenses of the Global utilities. The amount removed from operating
25 expenses of each utility is as follows:

26	Santa Cruz	(\$8,295)
27	Palo Verde	(\$8,407)

1	Valencia – Town Division	(\$2,761)
2	Valencia – Greater Buckeye Division	(\$ 334)
3	Water Utility of Greater Tonopah	(\$ 172)
4	Willow Valley	(\$ 842)

5

6 **Q. Please describe Global's income statement adjustment #4 – Annualize Revenue and**

7 **Expenses for End-of Year Customer Counts.**

8 A. Income statement adjustment #4 adjusts revenues and expenses to reflect the number of

9 customers served by each utility as of December 31, 2011. The adjustment to revenue is

10 the difference between revenues generated by the Test Year bill count, and a pro forma

11 bill count that reflects the number of customers served on December 31, 2011. The

12 revenue portion of income statement adjustment #4 for each utility is as follows:

13	Santa Cruz	(\$39,999)
14	Palo Verde	\$222,324
15	Valencia – Town Division	\$ 97,384
16	Valencia – Greater Buckeye Division	(\$ 494)
17	Water Utility of Greater Tonopah	(\$1,319)
18	Willow Valley	(\$1,974)
19	Northern Scottsdale	\$2,115

20 An increase in purchased power and water treatment expense is also calculated based on

21 the estimated increase in gallons to be sold resulting from the change in year-end

22 customer counts. The expense portion of income statement adjustment #4, related to

23 purchased power and water treatment, for each utility is as follows:

24	Santa Cruz	\$ 3,553
25	Palo Verde	\$16,667
26	Valencia – Town Division	\$12,993
27	Valencia – Greater Buckeye Division	(\$ 5)

1	Water Utility of Greater Tonopah	(\$78)
2	Willow Valley	(\$67)
3	Northern Scottsdale	(\$148)

4

5 **Q. Please describe Global's income statement adjustment #5 – Reduction to 2011**
6 **revenue for the unbilled minimum charge earned prior to 2011 but recognized in**
7 **2011.**

8 **A.** In 2011, we determined that the Global's accrual for unbilled service fees (classified as
9 accrued revenue) was understated as of December 31, 2010. A portion of the monthly
10 minimum service fee should have been accrued as of December 31, 2010 on accounts
11 serviced but not yet billed for such services. As a result of this finding, Global corrected
12 this prior period error in 2011. Because the correction was recorded in 2011, additional
13 revenues were recorded in Global's 2011 income statement which related to amounts
14 earned prior to 2011. Accordingly, income statement adjustment #5 consists of reducing
15 2011 revenue by the amount of revenues earned prior to 2011. The revenue removed
16 through income statement adjustment #5 for each utility is as follows:

17	Santa Cruz	(\$291,107)
18	Palo Verde	(\$341,676)
19	Valencia – Town Division	(\$ 71,047)
20	Valencia – Greater Buckeye Division	(\$ 13,894)
21	Water Utility of Greater Tonopah	(\$ 5,087)
22	Willow Valley	(\$16,151)
23	Northern Scottsdale	(\$ 5,655)

24

25

26

27

1 **Q. Please describe Global's income statement adjustment #6 - purchased power**
2 **adjustment.**

3 A. This adjustment increases purchased power costs to reflect known and measurable rate
4 increases from our power service providers.

5
6 **Q. Who are the power service providers for Valencia Water Company, Water Utility of**
7 **Greater Tonopah, and Willow Valley Water Company?**

8 A. Arizona Public Service (APS) is the power service provider for Valencia Water Company
9 (both divisions), as well as Water Utility of Greater Tonopah. Mohave Electrical
10 Cooperative (MEC) is the power service provider for Willow Valley.

11
12 **Q. Please discuss Global's proposal to include APS's rate increase into the rates for**
13 **each of these utilities?**

14 A. On May 24, 2012 the Commission issued a decision, Decision No. 73183, on APS's rate
15 application. Based on the Commission's decision, Global Water will inevitably incur
16 greater purchased power expenses starting in 2013. This known and measureable rate
17 increase could not be captured in the 2011 test year, however Global is proposing to
18 adjust the purchased power expense to account for the increased rate that will be
19 incurred.

20
21 **Q. Please discuss Global's proposal to include MEC's anticipated rate increase into the**
22 **rates for each of these utilities?**

23 A. In Docket No. E-01750A-11-0136, the ACC Utilities Division Staff agreed with MEC
24 that the recommended revenue increase should be \$3.1 million or a 4.02%¹. While the
25 exact rate increase for Willow Valley is not known at this time, the probability of an
26

27 ¹ DOCKET NO. E-01750A-11-0136, page 2 line 12

increase in purchased power costs appears to be high, and therefore an adjustment to the purchased power costs should be allowed.

Q. How much of an increase to purchased power costs is Global Water proposing for each utility serviced by APS?

A. Below is a summary of the anticipated increased costs on an annual basis from 2013 to 2016. The "Difference" is the anticipated increase as a result of the recently approved rate case.

No Rate Increase					
	2013	2014	2015	2016	
VWC	\$ 411,216	\$ 411,216	\$ 411,216	\$ 411,216	
WUGB	\$ 25,206	\$ 25,206	\$ 25,206	\$ 25,206	
WUGT	\$ 20,455	\$ 20,455	\$ 20,455	\$ 20,455	
Total	\$ 456,877	\$ 456,877	\$ 456,877	\$ 456,877	

Scenario 1 - Four Corners Power Plant Not Included in Base Rates					
	2013	2014	2015	2016	
VWC	\$ 435,494	\$ 442,579	\$ 447,005	\$ 451,475	
WUGB	\$ 26,707	\$ 27,129	\$ 27,400	\$ 27,674	
WUGT	\$ 21,636	\$ 22,014	\$ 22,234	\$ 22,457	
Total	\$ 483,837	\$ 491,722	\$ 496,639	\$ 501,606	

Difference	\$ 26,960	\$ 34,845	\$ 39,762	\$ 44,729	
------------	-----------	-----------	-----------	-----------	--

Q. How did Global calculate the increased cost for the utilities served by APS?

A. The rate increases were based on the ACC's decision dated May 24, 2012, Decision No. 73183. Based on this decision, the following rates changes were factored into Global's existing power costs:

- Rates may increase by 6.4% in February of 2013 when the Power Supply Adjustor resets;

- 1 ▪ If the Four Corners transaction closes in 2012, there would be a reduction in the PSA
- 2 forward component, resulting in a negative 2.9 percent PSA impact, and the February
- 3 2013 PSA reset would be approximately 3.5 percent instead of 6.4 percent. However,
- 4 since it is unknown if the Four Corners transaction will close Global used an increase
- 5 of 6.4%;
- 6 ▪ When the first LFCR adjustment is approved by the Commission, a 0.2 percent
- 7 adjustment to bills would occur on March 1, 2013²;
- 8 ▪ LFCR will have an annual 1 percent year over year adjustment cap based on total
- 9 Company revenues³

10
11 Based on the adjustments identified above, a 6.4% increase was applied to the historical
12 rates Global Water has paid effective February 2013. Additionally, a 0.02% increase to
13 historical rates was applied effected March 2013 to account for the LFCR adjustment.
14 Lastly, an annual increase of 1% was applied to the historical rates to account for the
15 LFCR adjustment cap effective January 2014. The anticipated purchased power expenses
16 without a rate increase were compared to the anticipated purchased power expenses with
17 the anticipated rate increase. The difference between these two scenarios is the anticipated
18 increased purchased power expense.

19
20 **Q. How much of an increase to purchased power costs is Global Water proposing to add**
21 **for Willow Valley as a result of MEC's rate increase application?**

22 **A. Below is the estimated annual utility costs based on historical purchased power costs. The**
23 **"No Increase" estimate is based on historical costs. The "4.02% Increase" estimate**
24 **accounts for an increase in purchased power rates of 4.02%. The difference between these**
25 **two estimates is the proposed expense to be added.**

26

27 ² Decision No. 73183, Page 26 line 11-20.

³ Decision No. 73183, page 13 line 18.

Willow Valley Rate Increase					
	2013	2014	2015	2016	
No Increase	\$ 42,933	\$ 42,933	\$ 42,933	\$ 42,933	
4.02% Increase	\$ 44,659	\$ 44,659	\$ 44,659	\$ 44,659	
Difference	\$ 1,726	\$ 1,726	\$ 1,726	\$ 1,726	

Q. How did Global calculate the increased cost for the utility served by MEC?

A. The estimated increase in purchased power costs is based on the Staff Reply Brief in Docket No. E-01750A-11-0136, in which the ACC Staff agrees with MEC that the recommended revenue increase for MEC should be 4.02%⁴. Based on this concurrence, Global calculated a 4.02% increase into the historical purchase power cost paid by WVWC to MEC.

Q. How can Global propose an increase to purchased power costs for the WVWC utility when the proposed increase to MEC's rates has not been approved by the ACC?

A. Global Water would like to reserve the right to propose an adjustment in rebuttal testimony after the ACC issues its order in this case.

Q. Please describe Global's income statement adjustment #7 – Remove ICFA CIAC Amortization.

A. As discussed for rate base adjustment #3 above, ICFA funds are recorded in Global's books as CIAC and were imputed by the Commission in Global's last rate case as a reduction to rate base. To the extent that ICFA CIAC attributed to plant is associated with plant in service, the CIAC has been amortized as a reduction to depreciation expense. As discussed in Mr. Walker's Direct Testimony, Global is requesting that no ICFA funds be imputed as CIAC. If the Commission agrees, the CIAC imputation would be reversed, and thus there would be no ICFA related CIAC to amortize. Accordingly,

⁴ DOCKET E-01750A-11-0136, Staff Reply Brief, Page 2 line 12.

1 income statement adjustment #7 eliminates the amortization recorded during the test year
2 for ICFA CIAC. The amortization reduction for each utility is as follows:

3		
4	Santa Cruz	\$274,230
5	Palo Verde	\$366,809
6	Water Utility of Greater Tonopah	\$355,895
7		

8 **Q. Please describe Global's income statement adjustment #8 – Reclassify "unmeter"**
9 **revenue to "metered".**

10 **A.** Income statement adjustment #8 is a reclassification of revenue between accounts, with
11 no net impact on operating income.

12
13 **Q. Please describe Global's income statement adjustment #9 – Adjust for depreciation**
14 **of post-test-year plant additions.**

15 **A.** Income statement adjustment #9 represents the calculated annual depreciation expense on
16 post-test year capital expenditures discussed in rate case adjustment #1 above. As
17 previously noted, Mr. Fleming's Direct Testimony addresses the post-test year plant, and
18 explains why it should be included in rate base. If the plant is included in rate base, a
19 corresponding adjustment to depreciation expense is appropriate to reflect the additional
20 plant. Additional depreciation expense added by income statement adjustment #9 for
21 each utility is as follows:

22	Santa Cruz	\$15,345
23	Palo Verde	\$40,920
24	Valencia – Town Division	\$33,629
25	Water Utility of Greater Tonopah	\$ 5,339
26	Willow Valley	\$ 4,022
27		

1 Q. Please describe Global's income statement adjustment #10 – Adjustment for Final
2 Phase of Rate Phase In.

3 A. For Global's Palo Verde Utility Company, rates established by the company's last rate
4 case are phased in over a three year period, with the final rates going into effect January
5 1, 2012. Income statement adjustment #10 consists of a \$1,936,883 pro forma
6 adjustment to 2011 revenues to assume that the final phased in rates were in effect during
7 the test year.

8
9 Q. Please describe Global's income statement adjustment #11 – Adjust Bad Debt
10 Expense for Pro Forma Adjustments to Test Year Revenues.

11 A. Income statement adjustment #11 applies the historical bad debt rates of Global's utilities
12 and calculates bad debt expense that could reasonably be expected based on the pro forma
13 adjustments to test year revenues. The adjustment to bad debt expense for each utility is as
14 follows:

15	Santa Cruz	(\$1,706)
16	Palo Verde	\$11,500
17	Valencia – Town Division	\$ 165
18	Valencia – Greater Buckeye Division	(\$ 352)
19	Water Utility of Greater Tonopah	(\$ 147)
20	Willow Valley	(\$ 213)
21	Northern Scottsdale	\$ 0

22
23 Q. Please describe Global's income statement adjustment #12 – Adjust Property Tax
24 Expense for Pro Forma Adjustments to Test Year Revenues.

25 A. Because property taxes paid by Global's utilities are based on the utilities' operating
26 revenues, income statement adjustment #12 adjusts property tax expense of Global's
27 utilities that could reasonably be expected based on the pro forma adjustments to test year

1 revenues. The adjustment to property tax expense due to pro forma adjustments to test
2 year revenues for each utility is as follows:

3	Santa Cruz	\$165,722
4	Palo Verde	\$552,856
5	Valencia – Town Division	\$110,902
6	Valencia – Greater Buckeye Division	(\$7,439)
7	Water Utility of Greater Tonopah	\$3,534
8	Willow Valley	\$11,086
9	Northern Scottsdale	(\$ 587)

10
11 **Q. Please describe Global's income statement adjustment #13 – Adjust MOU License**
12 **Fee Expense for Pro Forma Adjustments to Test Year Revenues.**

13 **A.** Global's Santa Cruz and Palo Verde utilities incur license fees pursuant to a long-term
14 Memorandum of Understanding (MOU) with the City of Maricopa, payable to the City.
15 Such fees are calculated based on 2% of utility revenues plus a fee of \$50 per new
16 residential service connection. The 2% of revenues fee was accepted by the Commission
17 as recoverable test year expenses in Global's last rate case. Because the license fees are
18 derived based on the utilities' revenues, income statement adjustment #13 adjusts the
19 operating expense of the Santa Cruz and Palo Verde utilities to reflect the increased MOU
20 license fees that are be expected based on the pro forma adjustments to test year revenues.
21 The adjustment to MOU license fee expense due to pro forma adjustments to test year
22 revenues for each utility is as follows:

23	Santa Cruz	(\$6,803)
24	Palo Verde	\$37,366

1 Q. Please describe Global's income statement adjustment #14 – Adjust Income Tax
2 Expense for Pro Forma Adjustments to Test Year Revenues.

3 A. Because income taxes paid by Global's utilities are based on the utilities' pre-tax operating
4 income, income statement adjustment #14 adjusts income tax expense of Global's utilities
5 that could reasonably be expected based on the pro forma adjustments to test year
6 revenues. The adjustment to income tax expense due to pro forma adjustments to test year
7 revenues for each utility is as follows:

8	Santa Cruz	(\$807,474)
9	Palo Verde	(\$467,692)
10	Valencia – Town Division	(\$ 55,486)
11	Valencia – Greater Buckeye Division	(\$ 16,617)
12	Water Utility of Greater Tonopah	(\$186,238)
13	Willow Valley	(\$ 50,727)
14	Northern Scottsdale	(\$ 1,409)

15
16 Q. Please describe Global's income statement adjustment #15 – Proposed Revenue
17 Increase and Adjust Bad Debt Expense for such Rate Increase.

18 A. Income statement adjustment #15 adjusts proposed revenues based on the revenue
19 requirement calculated on Schedule A-1. The adjustment to proposed revenue for each
20 utility is as follows:

21	Santa Cruz	\$2,903,831
22	Palo Verde	\$3,556,267
23	Valencia – Town Division	\$ 798,321
24	Valencia – Greater Buckeye Division	\$ 33,505
25	Water Utility of Greater Tonopah	\$676,874
26	Willow Valley	\$473,893
27	Northern Scottsdale	\$ 0

1 Income statement adjustment #15 also applies the historical bad debt rates of Global's
2 utilities and calculates bad debt expense based on the proposed revenue requirement. The
3 adjustment to bad debt expense for each utility is as follows:

4	Santa Cruz	\$14,965
5	Palo Verde	\$22,502
6	Valencia – Town Division	\$ 4,993
7	Valencia – Greater Buckeye Division	\$ 819
8	Water Utility of Greater Tonopah	\$15,540
9	Willow Valley	\$5,565
10	Northern Scottsdale	\$ 0

11
12 **Q. Please describe Global's income statement adjustment #16 – Adjust MOU License**
13 **Fee Expense based on Proposed Revenue Increase.**

14 **A.** Global's Santa Cruz and Palo Verde utilities incur license fees pursuant to a long-term
15 Memorandum of Understanding (MOU) with the City of Maricopa, payable to the City.
16 Such fees are calculated based on 2% of utility revenues plus a fee of \$50 per new
17 residential service connection. As previously noted, the 2% of revenues fee was accepted
18 by the Commission as part of recoverable test year operating expenses in Global's last rate
19 case. Because the license fees are derived the utilities' revenues, income statement
20 adjustment #16 adjusts operating expense of the Santa Cruz and Palo Verde utilities to
21 reflect the increased MOU license fees that are expected as a result of the proposed
22 increase in revenues. The adjustment to MOU license fee expense for each utility is as
23 follows:

24	Santa Cruz	\$59,663
25	Palo Verde	\$73,111

1 **Q. Please describe Global's income statement adjustment #17 – Adjust Property Tax**
2 **Expense based on Proposed Revenue Increase.**

3 **A.** Because property taxes paid by Global's utilities are based on the utilities' operating
4 revenues, income statement adjustment #17 adjusts property tax expense to levels that can
5 be reasonably expected as a result of the proposed increase in revenues. The adjustment
6 to property tax expense for each utility is as follows:

7	Santa Cruz	\$74,274
8	Palo Verde	\$90,564
9	Valencia – Town Division	\$14,418
10	Valencia – Greater Buckeye Division	\$ 282
11	Water Utility of Greater Tonopah	\$11,570
12	Willow Valley	\$ 7,630
13	Northern Scottsdale	\$ 0

14
15 **Q. Please describe Global's income statement adjustment #18 – Adjust Income Tax**
16 **Expense based on Proposed Revenue Increase.**

17 **A.** Because income taxes paid by Global's utilities were based on the utilities' pre-tax
18 operating income, income statement adjustment #18 adjusts income tax expense to levels
19 that can be reasonably expected as a result of the proposed increase in revenues. The
20 adjustment to income tax expense for each utility is as follows:

21	Santa Cruz	\$1,063,371
22	Palo Verde	\$1,300,817
23	Valencia – Town Division	\$ 300,651
24	Valencia – Greater Buckeye Division	\$ 12,508
25	Water Utility of Greater Tonopah	\$250,802
26	Willow Valley	\$177,824
27	Northern Scottsdale	\$ 0

1 Q. Please describe Global's income statement adjustment #19 – Adjustment for
2 Additional Treatment Costs at Willow Valley.

3 A. This adjustment relates to additional water treatment costs to be incurred at Global's
4 Willow Valley utility after the test year. This matter is discussed in detail in Mr.
5 Fleming's Direct Testimony.

6
7 IV. Schedules.

8 Q. Please describe the schedules you are sponsoring.

9 A. I am sponsoring all of the Company's schedules, with the exception of the Cost of Capital
10 Schedules (A-3, D-1 to D-4, and H1 to H5), which are sponsored by Mr. Rowell.

11
12 Q. Please describe the "A" schedules (A-1 to A-5).

13 A. Schedule A-1 provides an overview of the rate increase. Schedule A-2 provides a
14 Summary of Results of Operations. Schedule A-4 provides Construction Expenditures and
15 Gross Utility Plant in Service. Schedule A-5 provides a summary of changes in financial
16 position.

17
18 Q. Please describe the rate base schedules (B-1 to B-5).

19 A. Schedule B-1 provides an overview of the original cost rate base. Schedule B-2 provides
20 details of the pro-forma adjustments to the original cost rate base. Global did not prepare a
21 Reconstruction Cost New (RCN), and accordingly adopts its original cost rate base as its
22 fair value rate base for the purposes of this case. Accordingly, there are no RCN schedules
23 (B-3 and B-4). Schedule B-5 provides the computation of working capital. In this case,
24 Global is not requesting an allowance for working capital.

25
26
27

- 1 **Q. Please describe the income statement schedules (C-1 to C-3).**
- 2 A. Schedule C-1 is the adjusted test year income statement. Schedule C-2 shows each pro-
- 3 forma adjustment to the test year income statement. Schedule C-3 provides the
- 4 computation of the gross revenue conversion factor.
- 5
- 6 **Q. Please describe the Financial and Statistical Schedules (E-1 to E-9).**
- 7 A. Schedule E-1 provides comparative balance sheets for the test year and the two previous
- 8 fiscal years. Schedule E-2 provides comparative income statements for the test year and
- 9 the two previous fiscal years. Schedule E-3 provides the comparative statement of changes
- 10 in financial position for the test year and the two previous fiscal years. Schedule E-4
- 11 provides a statement of changes in stockholder's equity for the test year and the two
- 12 previous fiscal years. Schedule E-5 provides the detail of utility plant for the test year and
- 13 the two previous fiscal years. Schedule E-6 is not relevant. Schedule E-7 provides certain
- 14 key operating statistics for the test year and the two previous fiscal years. Schedule E-8
- 15 provides a schedule showing all significant taxes charged to operations for the test year and
- 16 the two previous fiscal years. Schedule E-9 provides notes to financial statements.
- 17
- 18 **Q. Please describe Projections and Forecasts Schedules (F-1 to F-4).**
- 19 A. Schedule F-1 provides a schedule showing the income statement for the projected year,
- 20 compared with actual test year results, at present rates and proposed rates. Schedule F-2
- 21 provides a schedule showing projected changes in financial position for the projected year
- 22 as compared with the test year, at present and proposed rates. Schedule F-3 provides a
- 23 schedule showing the projected annual construction requirements, by property
- 24 classification, for 1 to 3 years subsequent to the test year compared with the test year.
- 25 Schedule F-4 provides documentation of the key assumptions used in preparing the
- 26 forecasts and projections.
- 27

1 **Q. Please describe the "H" schedules (H-1 to H-5).**

2 A. Schedule H-1 provides a summary of revenues at present and proposed rates. Schedule H-
3 2 provides the Analysis of Revenues by Detailed Class of Service. Schedule H-3 provides
4 the changes in rate schedules. Schedule H-4 provides the typical bill analysis, while
5 Schedule H-5 is the bill count.

6
7 **Q. Does this conclude your direct testimony?**

8 A. Yes.
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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE, Chairman

BOB STUMP

SANDRA D. KENNEDY

PAUL NEWMAN

BRENDA BURNS

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER – PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA.

DOCKET NO. SW-03575A-12-_____

Direct Testimony

of

Eduardo Borromeo

July 9, 2012

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1 **I. Introduction.**

2 **Q. Please state your name and business address.**

3 A. My name is Ed Borromeo. My business address is 21410 North 19th Avenue, Suite 201,
4 Phoenix, Arizona 85027.

5
6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Global Water Management, LLC as the Vice President of Operations.
8 In this role, I oversee all aspects of day-to-day business operations, including executive
9 oversight of the regulated utilities, IT operations and development, FATHOM Support
10 Operations, FATHOM project deliveries, Human Capital, and Administration.

11
12 **Q. Please describe your background and qualifications.**

13 A. Prior to my appointment as Vice President of Operations, I served as the General Manager
14 of Global's regulated utilities in Pinal County, Arizona. I oversaw customer service,
15 capital projects, and regulatory compliance for the utilities, as well as maintained
16 relationships within the municipalities and districts in the region.

17
18 I joined Global Water in 2006 after having served as a commissioned officer in the United
19 States Air Force for six years, where I specialized in operations, project management, and
20 emergency management. I hold a Bachelor's Degree in Civil and Environmental
21 Engineering from the University of California at Berkeley, and a Master's Degree in
22 Business from Webster University.

23
24 **II. Customer Service Improvements.**

25 **Q. Please discuss Global's customer service improvements.**

26 A. During our last rate case, the Commission held a Public Comment session in Maricopa,
27 and it was during this session that our entire management team listened to the

1 overwhelming concerns with our customer service. From that day forward we have set out
2 to change that perception and to become the industry leader in customer service.

3
4 Over the course of the last two years we have made significant strides in the various ways
5 customers interact with Global Water. We improved our walk-in customer service
6 experience and greatly expanded our walk-in hours of operation. We overhauled our call
7 center experience; investing over \$500,000 in capital to upgrade the systems and
8 infrastructure supporting our customers. Finally, we developed and implemented
9 “U2You”, an online platform that provides customers’ 24/7 support, account activity and
10 service information; accessible online through our website or through our smartphone
11 applications.

12
13 To maximize the capability of these platforms we have now installed fixed network
14 automated meter reading systems in all 3 of our largest water utilities – providing hourly
15 read data from each meter to our operations. This data is then presented back to customers
16 which enables customers to drive down consumption and catalyzes the entire community
17 to focus on water conservation. On every bill a customer sees an analysis of their usage
18 and compares it to their own historical use, and online they can see the use of their
19 neighbors and their community to benchmark against. This same technology allows us to
20 identify anomalies in usage patterns that may indicate leaks, water theft or plumbing
21 issues; all of which help the customer make educated decisions curbing water usage.
22 We strongly believe putting water management tools in the customer’s hands defines the
23 Smart Grid for water, and it is imperative to driving conservation in the arid southwest.

24
25 **A. Online Services.**

26 Our first evolution was to evaluate the means in which our customers interact with Global
27 Water. We had received numerous complaints about our website and its inability to

1 provide account management tools for our customers. In response to this feedback we
2 developed “U2You” an online portal that empowers customers to manage all aspects of
3 their account. Also, because Global Water’s main initiative is Total Water Management
4 (“TWM”¹), we knew that our online tools should empower customers to make decisions
5 that lead to conservation.

6
7 It is difficult for customers to really achieve conservation without having clear visibility on
8 the data to make educated decisions – people *want* to conserve, but they have no context
9 for *whether* they conserve. Through U2You our customers can compare their usage to
10 neighbors, the community and historical data to understand how their conservation efforts
11 stack up against others. While *comparative* data is useful and helpful; it needed to be
12 married with *current* data. Through the implementation of fixed network automatic meter
13 reading in our 3 largest water utilities, those customers can see daily, weekly and monthly
14 usage on their U2You accounts. This allows customers to better correlate their activity
15 with their consumption (and their bill). When a bill shows a month’s worth of use it can
16 cover a lot of mistakes. When customers spend the day washing cars and the driveway,
17 and see a text or an update on their U2You account that highlights the fact that they used
18 400 gallons in one day, people can correlate behavior to consumption – and that leads to
19 conservation.

20
21 The platform also provides visibility on the previous 12 months of billing data and the user
22 can access copies of actual bills. Signing up for Automatic Payments (“AutoPay”) and
23 paperless billing (“e-bills”) is now streamlined through an online interface – no longer are
24 physical documents required. U2You eliminates the need for the paper bill and provides
25 easy access to numerous tools that further evolve the customer service experience.

26
27 ¹ Definition from TWM book

1 **B. Mobile Applications.**

2 To further drive these tools into the hands of our customers, we also developed FATHOM
3 Mobile, an iPhone and Android based App that provides customers mobile access to their
4 U2You account. These applications are the first of their kind in this sector and enable
5 remote accessibility to water consumption, account information and various other
6 functionality including bill payment, any time, anywhere.

7
8 Customers will be able to setup automatic notifications that proactively communicate
9 anomalous patterns in usage. If usage exceeds a certain threshold, tier, or price point in a
10 given day, week or month; customers can opt to receive text messages, emails or app
11 notifications on the variances in usage. This information allows consumers to proactively
12 manage their account and understand specific behaviors that drive consumption. These
13 notifications also provide advanced communication on patterns indicative of leaks, thus
14 eliminating the shock one experiences when they open the monthly bill and see a spike in
15 usage.

16
17 **C. Call Center.**

18 After redesigning our online platform and adding the mobile applications, we also
19 restructured our entire call center operation so that it was completely customer centric. We
20 recognized to become an industry leader in customer service; we needed to structure all
21 facets of our operation with this goal in mind. We engaged with several consultants to
22 recognize any and all shortfalls and weaknesses in our current call center operation.

23
24 To start we identified an entirely new office space for call center operations, and we
25 designed this space to mirror some of the most effective call centers in the industry. The
26 furniture, the computer systems, the layout; all are conducive to a team environment and
27 provide easy access to resources to address customer concerns. Additionally, we

1 reorganized team structures, overhauled our training and quality assurance programs, and
2 developed a customer care operational roadmap with the help of industry leading experts.

3
4 While all these improvements are beneficial, the greatest improvement was the upgrade to
5 a new telephone solution. This infrastructure upgrade allows our call center cutting edge
6 customization that provides top end customer service.

7
8 The new Cisco Call Center Express telephone system provides us information on every
9 call that enters our system: we know how long the customer was on hold, what selections
10 they made, how many times they have called previously, and whether or not their needs
11 were met.

12
13 This information allows us to continually evolve our operations and constantly improve
14 upon the level of customer service. For example:

- 15 • Customers have the option to ask for a call back, instead of waiting on hold.
- 16 • They can receive text messages or email confirmations when they process
17 payments through the automated system.
- 18 • Customers can use the inbound Integrated Voice Response (“IVR”) system to
19 handle the majority of issues they call about, from inquiring on their balance to
20 making a payment, to allowing the customer to provide feedback about their
21 experience. Most issues can be addressed with IVR, saving customer time and
22 improving the service experience.

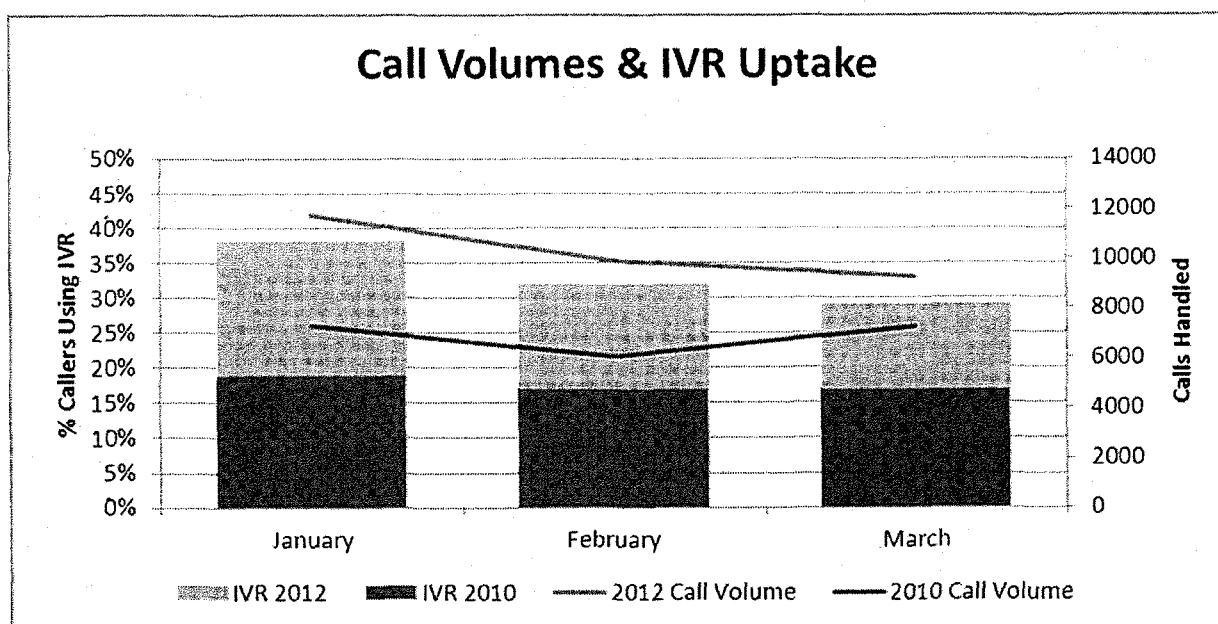
23
24 In addition to the call center operations, we have improved our Outbound IVR system.

25 The Cisco Telephony system proactively contacts customers via phone and text messages
26 to notify them of past due bills or pending disconnection orders. This level of
27

1 communication has drastically reduced overdue accounts receivable for the regulated
2 utilities as it enables more effective management of bad debt.

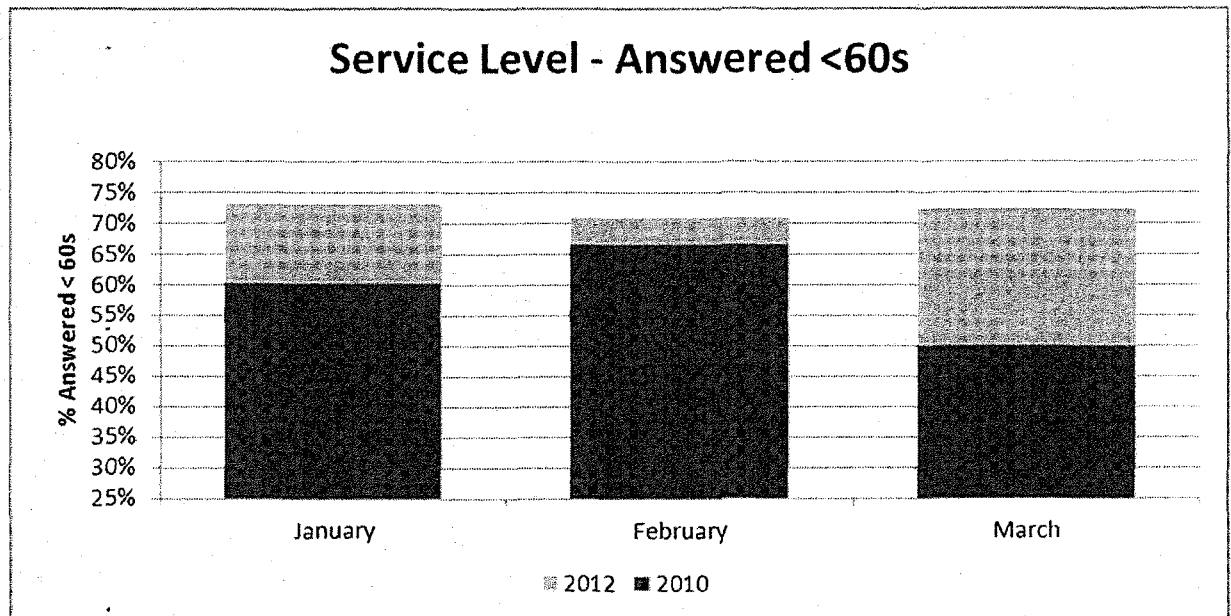
3
4 **D. Call Center Operations – Results.**

5 To provide an accurate analysis of the call center operation, the first quarter of 2010 and
6 the first quarter of 2012 were compared since they represent samples of the same season
7 and a two year snap shot of the results due the improvements employed. The uptake of the
8 IVR system has increased the percentage of customers who have their needs met without
9 the assistance of a call center representative. This not only translates to faster resolution of
10 customer issues overall, but it also equates to lower operating costs for the utilities. In the
11 first quarter of 2010, 17% of inbound calls employed the automated phone system in
12 addressing their needs, and by the first quarter of 2012, 38% of the customers use the
13 automated system and had their needs addressed more quickly.



26 With regard to call response times, in the first quarter of 2010, 59% of calls were addressed
27 in under 60 seconds, while in the first quarter of 2012, 72% of calls were addressed in under 60

seconds. In addition to these improvements in customer service, the call center handles 50% more calls than in the first quarter of 2010. For the regulated utilities, in the first quarter of 2010, 20,524 calls were handled, while in the first quarter of 2012, 30,812 calls were handled.



Without the upgrade of these systems and the restructure of the call center, we would not be able to realize the improvements in customer service while managing 50% more customer interactions.

E. Technology – Results.

This technology focus is central to our ongoing goal of becoming the industry leader in customer service. These initiatives have been successful – whether measured by the uptake rates of our online services, or by the remarkable improvements in key indicators of customer and account health.

In the first quarter of 2010, 8,571 customers used our online platform (37% of customer base), based on the initiatives over the last two years, this uptake has increased by 27%.

1 By the first quarter of 2012, 10,892 customers (45% of customer base) use our online
2 platform (U2You).

3
4 By providing customers additional ability to manage their accounts, we are not only
5 incenting water conservation, but also helping our customers avoid disconnection, pay
6 bills more timely, and respond to their questions and concerns more quickly and
7 effectively.

8
9 We have witnessed these results in our Accounts Receivable ("AR"), as customers are
10 paying their bill more timely based on the many tools to manage their account. There has
11 been a significant drop in disconnections; in the first quarter of 2012 the field services
12 teams in the regulated utilities executed 881 disconnect service orders, while during the
13 same time period in 2010 the field services team executed 1,585 disconnect service orders.
14 That is a drop of over 44%, which results in reduced operating costs for the regulated
15 utilities as well as reduced costs to customers (since they are avoiding the fees and
16 inconveniencies associated with disconnection).

17
18 **F. FATHOM's Contribution to Water Loss Mitigation.**

19 In support of the Regulated utilities' water loss mitigation efforts, FATHOM executes
20 multiple activities to drive down water loss. Unaccounted for water directly impacts
21 revenue for the utility and negatively impacts the customer. Global Water FATHOM
22 executes Read Management through the Network Operations Center ("NOC") to track the
23 constant flow of meter related data that is generated by the fixed network AMI systems.
24 The NOC is responsible for managing the health of the AMI systems and identifying
25 potential anomalies that may be indicative of water loss or water theft. Through daily
26 monitoring, the NOC understands and tracks on the communications and volumetric
27 measurements of every meter in the system. The NOC generates reports that identify any

1 anomaly with the metering systems or communication modules, and proactively dispatches
2 investigation service orders to field personnel. NOC activities and the Read Management
3 system ensure that meter reads are continually occurring and consumption data continues
4 to be relayed to the customers.

5
6 If there is a failure of a communication module or register, Read Management identifies
7 the failure and ensures a service order is submitted to the field to investigate the issue.

8 There are numerous types of exceptions that are addressed through Read Management.

- 9 ▪ Consumption Exception – Unusual usage patterns flagged during routine
10 reporting. These accounts are investigated, including field checks as necessary.
- 11 ▪ Zero Usage Reporting - For all active accounts that have zero usage for more than a
12 single billing period, we issue a field investigation service order.
- 13 ▪ Manual Reads and Checks – When the AMR systems do not capture a read, it is
14 Global's policy to issue a manual read service order to prevent estimated or zero
15 usage reads which are ultimately are troublesome for the customer and utility.
- 16 ▪ High Consumption Reporting – When an account registers abnormally high water
17 consumption the account is investigated and the customer is contacted if a leak is
18 suspected.
- 19 ▪ Alerts and Reports - The FATHOM Read Management platform and the AMI
20 systems themselves indicate many different failure or alert conditions. For
21 example, the "Tamper" or "No Read" reports identify when the radio modules do
22 not receive a read from the meter.

23
24 The above reporting enables the utilities to identify and investigate accounts that may be
25 displaying signs of water theft or water loss. Read Management provides the data on the
26 metering system so the utility can be confident that all metering devices are operational
27 and accounting for consumption. Instead of waiting one time per month for a customer to

1 identify a problem with the meter during the billing process, Read Management flags
2 potential concerns in advance, and allows the field to resolve the issue prior to a bill ever
3 being created and sent to the customer. This streamlines billing operations, reduces
4 potential delays to billing cycles and payment periods, and reduces the amount of customer
5 service calls by the customers. This adds value for both the utilities and the individual
6 customers.

7
8 In addition to driving down water loss, Read Management also provides reporting that
9 improves the level of service provided to the individual customer. Customers no longer go
10 a month before they gain visibility on their consumption habits: Through Read
11 Management, if usage spikes above "normal" for that account type, a service order is
12 created to investigate and the customer is contacted about a potential leak. This service
13 helps the consumer save money, while also being proactive in identifying an issue that
14 would likely cause concern with the utility.

15
16 The NOC and Read Management are paramount to our goal of being the industry leader in
17 customer service. *Excellence in customer service is not only dependent on the quality of*
18 *the individual interactions, but it also hinges upon the usefulness of the data and the tools*
19 *afforded to the customer.*

20
21 **III. FATHOM Cost of Service Analysis.**

22 **Q. How do Global's regulated utilities pay for the FATHOM services described above?**

23 A. The regulated utilities have a contract with FATHOM to provide these services. Our cost
24 analysis shows that the FATHOM services are very cost effective. We performed both
25 internal and external cost analysis to validate the contractual charges to the regulated
26 utilities.

1 **A. Cost of Service Analysis – Internal.**

2 **Q. Please describe your internal cost of service analysis.**

3 **A.** Our regulated utilities receive a greater level of service, account management and support
4 structure compared to other Global Water FATHOM clients served. When establishing the
5 cost of service charged to these utilities, the same model was applied for our other clients,
6 however, there was no profit margin included for the regulated utilities.

7
8 The cost of service model calculates the associated cost for each product offering. The
9 model has two facets: “Raw Costs Associated with Additional Account Uptake” and the
10 “Cost of Service for Each Product Offering”, the former establishes the foundation for the
11 Cost of Service calculations. The “Raw Costs Associated with Additional Account
12 Uptake” determines the variable cost per account for each labor type and each line item.

13
14 Labor costs are not all equally variable dependent upon the number of accounts serviced,
15 thus each labor class was individually analyzed to understand how many accounts one
16 labor body would support.

17
18 For instance, one Billing Supervisor is required for every 100,000 accounts, while one
19 Billing Representative is required for every 20,000 accounts, thus based on the
20 salary/wages and associated overhead of these position types you can calculate the cost per
21 account for each labor class. Subsequently, once the cost per account for each labor class
22 is determined, the average time per account can be calculated for each labor type.

23
24 Assuming there are approximately 175 hours in a work month, you can divide 175 hours
25 by the number of accounts each labor type can support, thus, one Billing Supervisor would
26 spend 0.0018 hours for every account serviced, or 6.3 seconds, this provides a proxy to
27

1 calculate the time requirement for each labor type to support utilities with varying volumes
2 of accounts.

3
4 All other costs associated with operating FATHOM were then analyzed on a line item
5 basis. Reviewing the historical financial data, representative costs were used to calculate
6 the cost per account for each line item. For instance, postage is approximately \$23K per
7 month, that cost is for servicing 95,000 accounts, thus you can calculate the cost per
8 account for postage by dividing \$23,000 by 95,000.

9
10 The "Cost of Service for Each Product Offering" identifies the cost per account for each
11 product offered in the product tree (Attachment Borrromeo-1). Each product option incurs
12 specific costs for labor, licensing, support functions, and various other auxiliary costs.

13
14 The "Cost of Service for Each Product Offering" analysis uses a 1000-account population
15 as a proxy to calculate the associated costs for operating each product option.

16 Incorporating the time required for each labor element in supporting an account, you can
17 then calculate the representative labor hours required to support each product option. Not
18 all product options incur all support costs, thus it is dependent on the scope and scale of
19 each product offering.

20
21 The "Regulated Utilities Cost of Service Analysis" identifies all products that are provided
22 to the regulated utilities by Global Water FATHOM. The operational cost per account
23 figure is directly correlated to the cost per account calculated through the "Cost of Service
24 for Each Product Offering" analysis previously described. Aside from the Palo Verde
25 Utility Company, all other utilities have an operational cost of \$7.00/account. Palo Verde
26 gains efficiencies from sharing customers with Santa Cruz, thus, specific services are being
27 provided to only Palo Verde.

1 B. **Lower Than Cost and Lower Than Market.**

2 Q. **Please explain how the FATHOM costs compare under the “lower of cost or market”**
3 **standard.**

4 A. Global Water went further than the NARUC standard of “lower of cost or market” when
5 assigning FATHOM costs to Global Water affiliated utilities. The FATHOM costs
6 assigned to Global Water affiliates are one-third lower than actual cost; and 71% lower
7 than market costs as explained below.

8
9 Per the “Cost of Service for Each Product Offering”, based on the product options Palo
10 Verde and Santa Cruz receive, their respective costs for these product options are
11 \$2.70/account for Palo Verde and \$7.00/account for Santa Cruz. Global Water FATHOM
12 currently charges \$3.50/account to the regulated utilities regardless of the service type.
13 The weighted average cost/account can be calculated using the \$2.70/account (for 17,334
14 PVUC account) and \$7.00/account (for the 24,093 SCWC and other accounts serviced),
15 the average operational cost/account equates to \$5.20 for the regulated utilities.

16
17 This operational cost (\$5.20/account) is 50% higher than the actual cost *charged* to the
18 utilities; it is undeniable that Global Water FATHOM charges much *less* than the actual
19 cost to service the regulated utilities. Global Water FATHOM charges \$3.50/account, only
20 67% of total operational cost of service.

21
22 Q. **How to the regulated utilities’ FATHOM costs compare to the prices charged to**
23 **outside customers?**

24 A. The cost for FATHOM services charged to external, unaffiliated FATHOM clients is again
25 dependent upon the various product options provided. While none of the external,
26 unaffiliated Global Water FATHOM clients have as many product options as the regulated
27 utilities, the City of Covina and Grass Valley have the most comparable product offering to

1 the regulated utilities. The equivalent cost to the regulated utilities for these same set of
2 product options is \$3.87/account. The average price/account charged to these two clients
3 sits at \$4.88/account. These external, unaffiliated FATHOM clients pay rates that are 39%
4 higher than what the regulated, affiliated utilities are charged, yet they receive fewer
5 services than the Global Water affiliates.

6
7 The services that the regulated, affiliated utilities receive above and beyond these clients
8 includes; AMI Option 2, AMI Option 3, CIS Option 5, and the several services that are
9 "Outside Standard Product Offering".

10
11 **C. Cost of Service Analysis – External.**

12 **Q. Please describe Global's external cost of service analysis.**

13 **A.** From an external perspective, you cannot compare the FATHOM product offering in full
14 to that of similar service providers. There is no true competition in the market currently,
15 since the suite of products provided by FATHOM are unique in their entirety; however, to
16 provide comparison we analyzed those service providers that had products similar to
17 specific product options under Global Water FATHOM.

18
19 In review of the City of Torrance, California Staff Report (included as Attachment
20 Borromeo-2); we are able to compare three unique vendors that offered products that
21 closely resemble the following FATHOM product options; Basic CIS, CIS Option 1, 2b, 4
22 & 6a.

23
24 When comparing price, American Accounting had the lowest cost/account at \$2.41, the
25 other two vendors were at \$3.57 and \$3.74/account. As referenced before, Global Water
26 FATHOM charges Global's utilities only 67% of the actual projected operating costs, thus
27

1 for these same select products, our regulated, affiliated utilities pay \$1.70/account for the
2 same products. That represents 71% of the cost of the next lowest vendor.
3

4 **Q. Does this conclude your direct testimony?**

5 **A. Yes.**
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Attachment

"1"

Global Water FATHOM - Regulated Utilities Internal CoS Analysis

SCWC Accounts 17334

Standard Product Offering		Operational	Sold		
Product	Description	Cost/Account/ Month	Cost/Account/ Month	PVUC	SCWC
Basic AMI Package	Basic AMI	\$ 0.68	\$ 0.68	\$ -	\$ 0.68
AMI Option 1	Warranty Mgmt, Read Mgmt & Presentment	\$ 0.46	\$ 0.46	\$ -	\$ 0.46
AMI Option 2	FATHOM Maintains Meter Population	\$ 0.10	\$ 0.10	\$ -	\$ 0.10
AMI Option 3	Advanced Analytics & Customer Reports	\$ 0.48	\$ 0.48	\$ -	\$ 0.48
Basic CIS Package	Billing, WO, Inbound IVR, U2You	\$ 1.67	\$ 1.67	\$ -	\$ 1.67
CIS Option 1	Outbound IVR - Collections	\$ 0.13	\$ 0.13	\$ -	\$ 0.13
CIS Option 2b	70/60, <7% ABA, Advanced IVR System	\$ 0.68	\$ 0.68	\$ -	\$ 0.68
CIS Option 3	Staffed Front Counter	N/A			
CIS Option 4	Bill Inserts	\$ 0.05	\$ 0.05	\$ -	\$ 0.05
CIS Option 5	Annual Water Quality Reports	\$ 0.05	\$ 0.05	\$ -	\$ 0.05
CIS Option 6b	Daily Fund Wiring	-	-	\$ -	\$ -
Basic AMS Package	Asset Presentment	\$ 0.60	\$ 2.00	\$ 2.00	\$ 2.00
AMS Option 1	Work Order System (included in basic)		\$ -	\$ -	\$ -
AMS Option 2	Plant 4D (included in basic)		\$ -	\$ -	\$ -
				\$ 2.00	\$ 6.30

Outside Standard Product Offering					
SCADA	SCADA System	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50
CIS Option 7	AR Management	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04
CIS Option 8	Advanced Reporting Services-Rate Case	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05
AMS Option 3	Engineering Support Services	\$ 0.11	\$ 0.11	\$ 0.11	\$ 0.11
			\$ 7.00	\$ 0.70	\$ 0.70
				\$ 2.70	\$ 7.00
				\$ 46,801.80	\$ 121,338.00
				PVUC Accounts 17,334	\$ 46,801.80
				All Other Accounts 24,093	\$ 168,651.00
				Weighted Average Operating Cost (2.70x17,334 + 7.00x24,093)/41,427	\$ 5.20 /account
				Actual Charge	\$ 3.50 /account
				% Charged of Operating Cost	67%

External CoS Analysis

Torrance Accounts (Bills per Month)		17494			
Vendor	Source	Scope of Services	Date	Monthly Cost	\$/Account
Vertex	City of Torrance RFP	Basic CIS, CIS Option 1, 2b, 4,6a	Sep-10	\$ 62,400.00	\$ 3.57
American Accounting	City of Torrance RFP	Basic CIS, CIS Option 1, 2b, 4,6a	Sep-10	\$ 42,200.00	\$ 2.41
American States Water Company	City of Torrance RFP	Basic CIS, CIS Option 1, 2b, 4,6a	Sep-10	\$ 65,497.00	\$ 3.74
GW FATHOM	City of Torrance RFP	Basic CIS, CIS Option 1, 2b, 4,6a	Sep-10	\$ 38,136.00	\$ 2.18

Attachment

"2"

Council Meeting of
September 21, 2010

Honorable Mayor and Members
of the City Council
City Hall
Torrance, California

Members of the City Council:

SUBJECT: Finance - Authorize a contract with Global Water Managerment LLC to provide utility billing services for the City's water, sewer and refuse accounts.

Expenditure: \$457,632 annually, \$197,500 one-time Implementation cost plus Postage

RECOMMENDATION

Recommendation of the Finance Director that Your Honorable Body approve a contract agreement with Global Water Managerment LLC to provide utility billing services for the City at the amount of \$38,136 per month plus postage and \$197,500 for one-time implementation costs.

Funding

Funding is available in the Water Enterprise Fund.

BACKGROUND/ANALYSIS

On August 17, 1999, Council approved a contract with American States Water Company (aka GSWC) for 3 years with two additional one year options (total contract of 5 years) to provide Utility Billing Services for the City. Prior to the actions taken by Council in August 1999, Council authorized staff to establish a review panel (March 1998) to analyze the possibility of outsourcing the City's utility billing, meter reading and meter maintenance job functions. Through numerous meetings, it was determined that outsourcing Utility Billing was both fiscally efficient and would enhance services provided to the residential and business community of the City of Torrance. It was estimated that outsourcing utility billing would save over \$300,000 per year while increasing services (24 hours per day call center services) such as on-line account balance inquiry and on-line credit card payments.

On March 8, 2005, your Honorable Body approved a successor contract with American States Utility Company (Golden State Water) to provide utility billing and customer service for the business and residential community of the City of Torrance.

The contract was for a term of 3 years with two additional two year options for a total of

seven years. We are currently in the first option period of the two option years and we have approximately 3 years remaining. In total, GSWC has provided utility billing services for over 10 years with the contract only increasing by the consumer price index CPI each year. In the successor contract, a provision was added that allowed for the cost of the contract to increase should the California Public Utilities Commission (CPUC) make a determination (ruling) modifying the cost allocation methodology and rate (see attachment A for contract language). For over three years the provision has been in the contract but has not impacted the City.

In January 2009 GSWC contacted staff requesting a meeting to inform the city about a November 2007 CPUC ruling and to discuss the possibility of terminating their contract with the City. In November 2007, the CPUC issued a decision (07-11-037) which changed the methodology for allocating costs. The CPUC decision mandates that Public Utilities who are regulated by the CPUC must charge a fully burden rate to recover the cost of the assets being used in providing the service and to reimburse those cost to the Public Utility's customers. At the January meeting GSWC was concerned that the CPUC ruling would make all of their third party agreements (contracts with agencies) non profitable and cost inefficient, thus their decision to terminate the contract with the City.

The CPUC decision effectively increased the monthly cost of the city's contract by an additional **\$35,926**. The original contract inclusive of any pass-through amounts totaled **\$29,571** per month. With the 2007 CPUC decision, the contract cost increases from \$29,571 per month to **\$65,497** per month excluding postage. GSWC terminated all of their city agreements with the exception of the City of Torrance because our contract has a "sole option to renew" provision in the contract which prevents GSWC from arbitrarily terminating the contract.

Staff was concerned about the meeting it had with GSWC and immediately began to (a) analyze and confirm the GSWC cost allocation, and (b) Look for a potential successor vendor. The finance department reviewed the CPUC decision to determine if GSWC proposed increase was in compliance with the CPUC decision and to determine the exact amount of the increase. The review process was time consuming as fact finding was required and some differences existed between GSWC interpretation of the CPUC decision and the City's interpretation. After analyzing the allocation methodology and lengthy with GSWC, staff concluded that the amounts under review were in line with the CPUC decision. In March of 2010, GSWC notified staff that the increase would go into effect beginning in October 2009 (retroactively). Additionally, GSWC stated that the CPUC would be making another ruling relating to the cost allocation methodology (due in September 2010) which would increase the contract price even further.

The search for a successor vendor was intensified after the meetings with GSWC. Originally, the search focused on those agencies located in the State of California however, it was discovered that the new CPUC ruling adversely impacted all agencies regulated by the CPUC. As staff began to talk to potential California vendors, it became obvious that third party utility billing agreements were less attractive to Utility Billing Companies regulated by the CPUC. Staff could not find any Utility Billing company who was regulated by the CPUC that would be interested in contracting with the City. Because of the CPUC ruling eliminating many California vendors, staff expanded the

scope of the search to include out of state vendors and to look at splitting the services using multiple vendors to perform the services. Staff looked at companies that provided billing only services and those that provide call center services. Banks, credit card companies and other were all approached. Finally a list of companies (primarily out of state companies) was identified.

On March 25, 2010 a Request for Proposal (RFP) was mailed to interested vendors to provide utility services for the City's water, sewer and refuse customers. The following is a list of vendors who either received a proposal or were contacted to discuss their interest in providing the requested billing services.

1. American Accounting and Billing Service Inc.
2. American Water
3. California Water Company
4. Capgemini
5. Chase Bank
6. Datamatics Global services Inc.
7. Global Water Management LLC
8. Southern California Edison
9. Southern California Gas
10. Vertex

A mandatory pre-proposal meeting was held on April 27, 2010, to identify interested vendors. Only four of the aforementioned companies attended the meeting. As a point of reference, none of the California base companies expressed an interest due primarily to the ruling of the CPUC, which makes these types of contracts unprofitable. The pre-proposal meeting identified three qualified companies who ultimately submitted a response to the City's RFP. The three companies who submitted proposals were:

1. American Accounting and Billing Service Inc.
2. Global Water Management, LLC
3. Vertex

The RFP was comprehensive and addressed many of the City's concerns relating to billing, customer service, cash handling, and reporting. There were 50 individual questions that required detailed explanations. The City established a five (5) member panel to individually analyze and evaluate the vendor's responses. The five City evaluating members consisted of:

1. Deputy Public Works Director
2. Assistant Finance Director
3. Senior Water Service Supervisor
4. Senior Administrative Analyst- Water Operations
5. Senior Accountant

A matrix was developed and the questions were weighted (see exhibit 1). The maximum score that a vendor could receive was 140 points. The matrix was developed to assess the vendors' abilities to provide the best qualified service. The vendors' price quote had

a weighted average and was used to separate any close proposals. The following is a summary of the raters' evaluation of the RFP's.

Raters	Vertex	American Accounting	Global Water Management
	126.1	90.8	135.7
	120.9	87.4	134.8
	128.2	107.0	133.8
	136.4	85.4	138.8
	128.1	96.9	131.8
Average Score	127.9	93.5	135.0

As mentioned above, the vendors' price quotes were used to assist the evaluators in making a final determination. As shown above, both Vertex and Global Water Management's scores were relatively similar as both offered outstanding services. American Accounting's proposal was less descriptive and did not respond sufficiently to the questions. When looking at the price quotes, a large discrepancy exists between the three companies. The RFP requested that the vendors separate their price quotes into four distinct categories. (1) Monthly Customer Service Contract (recurring), (2) Monthly cost of operating a local payment center in Torrance, (3) Estimated monthly postage cost and (4) Cost of Implementation (one-time cost for start-up conversion). The below table list the price quotes by company including the current vendors charges.

Cost Descriptions	Vertex	American Accounting	Global Water Management	Current Vendor
Monthly Customer Service Contract	\$62,400	\$42,200	\$38,136	\$65,497
Monthly cost of operating a local Payment Center	Not provided	\$9,000	\$11,320	N/A
Estimated Monthly Postage	Pass-through	\$7,500*	\$6,100*	\$5,787
One-time Implementation Cost	\$1,404,800	\$80,000	\$197,500	N/A

*Pass-through amount that varies based on postage rates and volume

As shown in the pricing table, Global Water Management price proposal was significantly lower than any of the other vendors including the current vendor.

The pricing module includes costing for a local payment center which would be similar to the one that is operated by GSWC. After examining the type of work and volume of work performed at the local payment center, staff concluded that the work could be performed using in-house labor at a fraction of the cost. Therefore, the cost of a local payment center was not included in the contract.

Staff compared the cost submitted by the respective vendors in the RFP with the cost of performing the services in house. The estimated monthly recurring cost for the City

totals approximately \$60,000, with one time implementation cost of approximately \$600,000. For the city to do the billing, it would take approximately 8 months to 1 year to purchase and install the appropriate software and to hire staff. Additionally, the City's costing does not include a 24/7 customer service call center and it does not provide the same hours of services due to the city's 9/80 close work schedule. The labor cost shown below represents the total compensation for the positions that would be operating the City's utility billing services.

Description	# of Positions	Annual cost	Monthly cost
Business Manager	1	\$113,700	\$9,475
Sr. Account Clerk	1	83,700	6,975
Account Clerk	2	151,200	12,600
Total Labor Cost		\$348,600	\$29,050

As mentioned above, the recurring cost includes labor hours, facility rental, software maintenance, printing and other cost. The implementation cost includes the acquisition of a billing system including an IVR system, payment processor, new computers, etc.

The City's costing is less competitive primarily because the vendors are spreading the cost of providing the services over multiple clients, which reduces the per client cost. Outsourcing the services is more cost efficient, so staff began the process of negotiating a contract.

Upon completing the evaluations of the RFP, it was apparent that Global Water Management had presented the best qualified responses to the City's RFP. In order to begin the negotiations, staff wanted to visit Global Water Management facility because they were located out of State and staff believed that a site verification would be beneficial. On June 11, 2010 the rating members visited Global Water Management's facility in Phoenix Arizona. All five members were very impressed with Global Water's operations. Specifically impressive was their plant operations, customer education center, call center and their plan use of the Interactive Voice Response (IVR) system. After the site visit, staff verified Global Water Management's California references. Global is providing utility billing and customer service for the City of Menlo Park and it is providing utility billing services for the City of Covina.

The negotiations resulted in a mutual agreed contract which obligates Global Water to provide all of the services included in the RFP. Some notable highlights of the contracts are:

1. Contract term is 4 years with two three-year renewal options
2. Contract can increase by CPI
3. The contract has a 4% ceiling
4. No Public Utility Commission PUC provision is included in the contract

Additionally, Global Water will provide the highlighted services included in the contract such as:

- Provide monthly and bi-monthly billings for water, sewer and refuse accounts
- Provide distribution messages on the bills
- Provide mailed notices and IVR phone calls for disconnection notices

- Provide 8 ½ x 11 billing insert as required by City – not to exceed six per year.
- Share point reporting environment with management reports to be selected by City staff
- Daily transfer to the City of the previous day's available collection, wire fees are invoiced at cost
- Dashboard interface for access to customer information data by City staff
- Export files from customer information system to handheld meter reading devices
- Daily imports of meter reads from handheld meter reading devices
- Support and management of payment interfaces which include – paperless billing, pay by phone, pay by mail, pay by debit/credit card, local payment options support and management of the inbound IVR system
- Support and management of the outbound disconnection notice IVR campaigns
- Support and management of the customer web portal
- Support and manage five licenses of the CityWorks based work order management system for customer service related service work orders
- Project manager and service coordination liaison for the City

The contract with Global Water provides the City with services that exceeds the current contract. The City's customers will be able to access their accounts on-line, make payments electronically or even pay their bills using the IVR system. The outbound IVR system will enable the City to notify customers of certain water emergencies and in certain cases call customers who have delinquent accounts.

Based on the high level of services and the lowest cost, staff recommends that Council enter into a contract with Global Water LLC for utility billing and customer services for the City of Torrance.

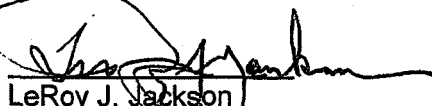
Respectfully submitted,

ERIC E. TSAO
FINANCE DIRECTOR

By 
Kenneth A. Flewellyn
Assistant Finance Director

CONCUR:


Eric E. Tsao
Finance Director


LeRoy J. Jackson
City Manager

Attachments:

- CPUC Contract Language
- City Cost Estimates
- Contract
- RFP
- Global Water Management RFP Response

ATTACHMENT A

- (1) California Public Utilities Commission Pass-Through. In addition to the monthly fee set forth in subparagraph 4.A., the City agrees to pay the Company an allocated share of the amount of revenue required ("the pass through") to be allocated to the customers of Southern California Water Company, a California corporation ("SCW"), by the California Public Utilities Commission ("CPUC") as compensation for providing Customer Services to the City. The amount of this pass-through on the Effective Date is 10.0% of total compensation paid to the Company or any of its unregulated subsidiaries for providing utility billing services. The CPUC Pass-Through shall be adjusted as follows:
- (2) Should the CPUC make a determination that the pass through amount should be different than 10% or the CPUC pass-through determined on a different basis, then the CPUC Pass-Through shall be adjusted on the effective date of such determination to an allocated share of the amount determined by the CPUC to be the amount of compensation to be provided by the Company to SCW in connection with the Company's provision of the Customer Services on the effective date of such change, taking into account the total compensation received by the Company hereunder for providing such Customer Services, the number of Customers in the City's customer service area and the number of customers receiving such services from the Company or any of its unregulated subsidiaries outside of the City's Customer service area. The Company shall provide City with written notice of any such change and a copy of the CPUC approved Pass-Through methodology.

**In House Labor and Material Costs for Utility Billing
Fiscal Year Ending 2011**

<u>Labor:</u>	Annual Cost	# of Staff	Water	Refuse	Sewer
Bus Manager	\$ 113,700	1	0.5	0.25	0.25
Sr Account Clerk	83,700	1	0.5	0.3	0.2
Account Clerk	151,200	2	1	0.8	0.2
	<u>348,600</u>	<u>4</u>	<u>2</u>	<u>1.35</u>	<u>0.65</u>

Materials and Service Charges:

Supplies	\$ 10,800	\$ 900
Printed Forms	31,000	2,583
Postage	-	-
Local Meeting and Travel	9,400	783
Telephone	10,500	875
Central Services	49,000	4,083
Software Manitenace, Data Lines, Internet, etc.	218,800	18,233
Facility Rental	36,000	3,000
Communication Equipment	1,600	133
PC Replacement	4,700	392
Total Material and Service Charges	<u>371,800</u>	<u>30,983</u>

Total Labor and Material Charges: \$ 720,400 \$ 60,033

Monthly Costs	\$ 60,033
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Implementation Cost

Billing System Plus Payment Processor	\$391,660
IVR System	184,695
Other Charges/Computers	16,000
Total Implementation Cost	\$ 592,355

Postage	\$ 72,960
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CONTRACT SERVICES AGREEMENT

This CONTRACT SERVICES AGREEMENT ("Agreement") is made and entered into as of September 21, 2010 (the "Effective Date"), by and between the CITY OF TORRANCE, a municipal corporation ("CITY"), and Global Water Management, LLC, a Delaware limited liability company ("CONTRACTOR").

RECITALS:

- A. The CITY wishes to retain the services of an experienced and qualified CONTRACTOR to provide utility billing services for the City of Torrance.
- B. In order to obtain the desired services, the CITY has circulated its Request for Proposal to Provide Utility Billing Services for the City of Torrance, RFP No. 2010-05 (the "RFP").
- C. CONTRACTOR has submitted a Proposal (the "Proposal") in response to the RFP. In its Proposal CONTRACTOR represents that it is qualified to perform those services requested in the RFP. Based upon its review of all proposals submitted in response to the RFP, the CITY is willing to award the contract to CONTRACTOR.

AGREEMENT:

1. SERVICES TO BE PERFORMED BY CONTRACTOR

CONTRACTOR will provide the services and install those materials listed in CONTRACTOR's Proposal submitted in response to the RFP. A copy of the RFP is attached as Exhibit A. A copy of the Proposal is attached as Exhibit B.

2. TERM

Unless earlier terminated in accordance with Paragraph 4 below, this Agreement will continue in full force and effect from the Effective Date through February 1, 2015. If approved by the City Council, the City may, at its option, extend the Agreement for two additional three-year terms (a total of six additional years)

3. COMPENSATION

A. CONTRACTOR's Fee.

For services rendered pursuant to this Agreement, CONTRACTOR will be paid in accordance with the compensation schedule set forth in the Proposal. Commencing on February 1, 2011, the CITY will pay the CONTRACTOR the following monthly fee for Service.

Service	Monthly	Annually
Billing and Customer Service	\$38,136	\$457,632
Total recurring Cost	\$38,136	\$457,632
One Time Implementation Cost		\$197,500

In addition to the monthly service fee, the CITY will pay CONTRACTOR a one-time implementation fee for start-up conversion cost of \$197,500.

Commencing in the second year of the Agreement (February 1, 2012), and each subsequent year, the monthly recurring cost shall be increased by the Consumer Price Index ("CPI-W"), Urban Wage Earners and Clerical Workers for Los Angeles, Riverside, Orange County published by the U.S. Bureau of Labor Statistics, Department of Labor ("BLS"), 1982-1984 =100 for December. In no year shall the year over year increase exceed 4%.

- B. Postage. In addition to the monthly fee set forth in subparagraph 3.A. above, the City agrees to pay all postage cost relating to billing its Customers. The Contractor will send the City a monthly detailed billing displaying actual billing cost (calculated at the Contractor's Carrier Route Sorting Rate) for City of Torrance residents.

C. Schedule of Payment.

Provided that the CONTRACTOR is not in default under the terms of this Agreement, upon presentation of an invoice, CONTRACTOR will be paid monthly, within 30 days after the date of the monthly invoice.

4. TERMINATION OF AGREEMENT

A. Termination for Convenience.

1. Either party may, at any time, terminate the Agreement for convenience and without cause by providing one year (365) days written notice to the other party.
2. Upon receipt of written notice from CITY of such termination for CITY's convenience, CONTRACTOR will:
 - a. Cease operations as directed by CITY in the notice;
 - b. take actions necessary, or that CITY may direct, for the protection and preservation of the work; and

- c. except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
3. In case of such termination for CITY's convenience, CONTRACTOR will be entitled to receive payment for work executed; and costs incurred by reason of such termination, along with reasonable overhead and profit on the work not executed.

B. Termination for Cause.

1. If either party fails to perform any term, covenant or condition in this Agreement and that failure continues for 15 calendar days after the non-defaulting party gives the defaulting party notice of the failure to perform, this Agreement may be terminated for cause; provided, however, that if during the notice period the defaulting party has promptly commenced and continues diligent efforts to remedy the default, the defaulting party will have such additional time as is reasonably necessary to remedy the default.
2. In the event this Agreement is terminated for cause by the default of the CONTRACTOR, the CITY may, at the expense of the CONTRACTOR and its surety, complete this Agreement or cause it to be completed. Any check or bond delivered to the CITY in connection with this Agreement, and the money payable thereon, will be forfeited to and remain the property of the CITY. All moneys due the CONTRACTOR under the terms of this Agreement will be retained by the CITY, but the retention will not release the CONTRACTOR and its surety from liability for the default. Under these circumstances, however, the CONTRACTOR and its surety will be credited with the amount of money retained, toward any amount by which the cost of completion exceeds the Agreement Sum and any amount authorized for extra services.
3. Termination for cause will not affect or terminate any of the rights of the CITY as against the CONTRACTOR or its surety then existing, or which may thereafter accrue because of the default; this provision is in addition to all other rights and remedies available to the CITY under law.

C. Termination for Breach of Law.

1. In the event the CONTRACTOR or any of its officers, directors, shareholders, employees, agents, subsidiaries or affiliates is convicted (i) of a criminal offense as an incident to obtaining or attempting to obtain a public or private contractor subcontract, or in the performance of a contract or subcontract; (ii) under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a public consultant or contractor; (iii) under state or federal antitrust statutes arising out of the submission of bids or proposals; or (iv) of violation of Paragraph 19 of this Agreement; or for any other cause the CITY determines to be so serious and compelling as to affect CONTRACTOR's responsibility as a public consultant or contractor, including but not limited to, debarment by another governmental agency, then the CITY reserves the unilateral right to terminate this Agreement or to impose such other sanctions (which may include financial sanctions, temporary suspensions or any other condition deemed appropriate short of termination) as it deems proper. The CITY will not take action until CONTRACTOR has been given notice and an opportunity to present evidence in mitigation.

D. Within fifteen (15) days after termination or expiration of this Agreement under any circumstances, the following events must occur:

1. CITY access to and use of the CONTRACTOR Platform (defined as CONTRACTOR'S Customer Information System ("CIS"), and Global's Master Data Management ("MDM") products) is terminated.
2. CITY must return to CONTRACTOR or destroy all copies of the CONTRACTOR Documentation (defined as any instruction, comment, or information whether in printed or electronic form related to the Platform, including, but not limited to any technical or user documentation relating to the installation, use, or maintenance of the Platform, including reference, user, installation, systems administrator, technical manuals, guides, and "readme" files, whether in hard copy or in on-line format, as may be supplied from time to time by CONTRACTOR to CITY. Documentation also includes any updates, upgrades, or new versions of the foregoing released by CONTRACTOR, in its sole discretion during the term of this Agreement), and shall delete or destroy all portions or excerpts of the Platform or

Documentation contained, commingled, or incorporated in any form with CITY'S information and electronic systems, including electronic data files and magnetically encoded media, so that neither CITY nor any of CITY's affiliates retain any of the Platform or Documentation in whole or in part. Upon request, CITY must certify in writing the complete return or destruction of the Platform or Documentation within 30 days of the request.

5. FORCE MAJEURE

If any party fails to perform its obligations because of strikes, lockouts, labor disputes, embargoes, acts of God, inability to obtain labor or materials or reasonable substitutes for labor or materials, governmental restrictions, governmental regulations, governmental controls, judicial orders, enemy or hostile governmental action, civil commotion, fire or other casualty, or other causes beyond the reasonable control of the party obligated to perform, then that party's performance shall be excused for a period equal to the period of such cause for failure to perform.

6. DISPUTE RESOLUTION

In the event that any dispute arises between the Parties, the Parties must attempt in good faith to identify a neutral third-party acceptable to both Parties who is experienced in matters such as those provided for in this Agreement, and request that person to mediate the dispute. In the event that such mediation is not undertaken and successfully concluded within 90 days after the dispute arises, the Parties to any such dispute may pursue those rights and remedies provided for in this Agreement, including instituting legal action.

7. THE CITY'S REPRESENTATIVE

Ken Flewellyn is designated as the "City Representative," authorized to act in its behalf with respect to the work and services specified in this Agreement and to make all decisions in connection with this Agreement. Whenever approval, directions, or other actions are required by the CITY under this Agreement, those actions will be taken by the City Representative, unless otherwise stated. The City Manager has the right to designate another City Representative at any time, by providing notice to CONTRACTOR.

8. CONTRACTOR REPRESENTATIVE(S)

The following principal(s) of CONTRACTOR are designated as being the principal(s) and representative(s) of CONTRACTOR authorized to act in its behalf with respect to the work specified in this Agreement and make all decisions in connection with this Agreement:

Jason Bethke
Cindy Liles

9. INDEPENDENT CONTRACTOR

The CONTRACTOR is, and at all times will remain as to the CITY, a wholly independent contractor. Neither the CITY nor any of its agents will have control over the conduct of the CONTRACTOR or any of the CONTRACTOR's employees, except as otherwise set forth in this Agreement. The CONTRACTOR may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the CITY.

10. BUSINESS LICENSE

The CONTRACTOR must obtain a City business license prior to the start of work under this Agreement, unless CONTRACTOR is qualified for an exemption.

11. OTHER LICENSES AND PERMITS

CONTRACTOR warrants that it has all professional, contracting, and other permits and licenses required to undertake the work contemplated by this Agreement.

12. FAMILIARITY WITH WORK

By executing this Agreement, CONTRACTOR warrants that CONTRACTOR (a) has thoroughly investigated and considered the scope of services to be performed, (b) has carefully considered how the services should be performed, and (c) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, CONTRACTOR warrants that CONTRACTOR has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services set forth in this Agreement. Should CONTRACTOR discover any latent or unknown conditions that will materially affect the performance of the services set forth in this Agreement, CONTRACTOR must immediately inform the CITY of that fact and may not proceed except at CONTRACTOR's risk until written instructions are received from the CITY.

13. CARE OF WORK

CONTRACTOR must adopt reasonable methods during the term of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and other components to prevent losses or damages, and will be responsible for all damages, to persons or property, until acceptance of the work by the CITY, except those losses or damages as may be caused by the CITY's own negligence.

14. CONTRACTOR'S ACCOUNTING RECORDS; OTHER PROJECT RECORDS

Records of the CONTRACTOR's time pertaining to the project, and records of accounts between the CITY and the CONTRACTOR, will be kept on a generally recognized accounting basis. CONTRACTOR will also maintain all other records, including without limitation specifications, drawings, progress reports and the like, relating to the project. All records will be available to the CITY during normal working hours and upon written notification at least two (2) days in advance. CONTRACTOR will maintain these records for three years after final payment.

15. CITY ACCESS TO THE PLATFORM

- A. CITY is allowed access to the Platform solely for CITY's own internal operations, and cannot sublicense, rent, or permit anyone other than CITY's own authorized employees and agents that have received proper training by CONTRACTOR personnel, to use or have access to the Platform under any circumstances not authorized by this Agreement.
- B. Unless otherwise expressly authorized in this Agreement, CITY shall not:
 - 1. Distribute, disclose, or transfer to any third party, except for CITY's employees and agents, any portion of the Platform or use or demonstrate the Platform in any service bureau arrangement, facility management, or third party training; or
 - 2. Use the Platform for any purpose or application other than as permitted under this Agreement.
 - 3. Attempt to derive, or permit or help others to derive the Source Code (defined as the Software written in programming languages, including all comments and procedural code, such as job control language statements, in a form intelligible to trained programmers and capable of being translated into object code for operation on computer equipment through assembly or compiling, and accompanied by documentation, including flow charts, schematics, statements of principles of operations, and architecture standards, describing the data flows, data structures, and control logic of the Software in sufficient detail to enable a trained programmer through study of such documentation to maintain and/or modify the Software without undue experimentation) relating to the Software (defined as the program material in machine-readable or

interpreted form, and may include, where appropriate, listings of either machine code or source code and related materials, including instructions and documentation provided by CONTRACTOR to CITY, including any such programs provided subsequent to this Agreement, and including any and all copies) or attempt to otherwise convert or alter the Software into human readable code or (b) remove or obscure any product identification, copyright or other notices from any Documentation.

4. CITY agrees that it will not attempt to derive, or permit or help others to derive the Source Code relating to the Software or attempt to otherwise convert or alter the Software into human readable code. CITY further agrees that it will not attempt to duplicate, or permit or help others to duplicate, the Source Code relating to the Software.
 5. CITY shall have no right to modify any of the Software supplied by CONTRACTOR for CITY's use under this Agreement without the prior written approval and direction of the CONTRACTOR.
 6. CITY agrees that it will not, except as otherwise expressly provided in this Agreement or except as dictated by CITY's standard computer system's backup procedures and/or test environments, make or allow others to make copies or reproductions of the Software or other proprietary information in any form.
 7. CITY may duplicate the Documentation and Documentation to effectuate the purposes of this Agreement, at no additional charge, for the CITY's use so long as all required proprietary markings are retained on all duplicated copies.
- C. CONTRACTOR has the right, upon reasonable advance notice and during regular business hours, to inspect CITY's books, records, computers, and facilities with respect to the use of the Platform to verify that:
1. Such use is within the scope of this Agreement,
 2. there are appropriate security procedures to protect any Confidential Information, and
 3. Customer is in compliance with this section.

16. PROPRIETARY AND INTELLECTUAL PROPERTY RIGHTS.

- A. CITY acknowledges that the Platform and Documentation is considered by CONTRACTOR to be valuable trade secrets of CONTRACTOR or third-party providers. CONTRACTOR or its third-party providers are the sole and exclusive owner of the Platform and Documentation. This Agreement does not give CITY any ownership interest in the Platform or Documentation, but only the limited right to access and use the Platform and Documentation under the terms of this Agreement.
- B. CITY agrees that it will not remove, alter, or otherwise obscure any proprietary rights notices appearing in the Platform or Documentation.

- C. The Platform or Documentation may include certain custom modifications made by CONTRACTOR in order to meet the CITY's expectation. CONTRACTOR will retain title to any custom modifications, and may, at its sole discretion and at any time, make changes, upgrades, updates, enhancements, or other modifications to the Platform or Documentation.

17. CONFIDENTIALITY

- A. The Platform and Documentation must be considered Confidential Information of CONTRACTOR's for purposes of this Agreement, regardless of whether or not it is so marked. Except as permitted in this Agreement, CITY must not use, make, have made, distribute, or disclose any copies of the Platform or Documentation, in whole or in part, or the information contained therein without the prior written authorization of CONTRACTOR.
- B. Upon the termination or expiration of this Agreement, CONTRACTOR will comply with the provisions of Section 4(D).
- C. Each party acknowledges that in the course of the performance of this Agreement, it may obtain the Confidential Information (defined as that information of either party ("Disclosing Party") which is disclosed to the other party ("Receiving Party") under this Agreement in written form and marked "Confidential," "Proprietary," or similar designation, or if orally disclosed, that information which the Receiving Party should reasonably discern, by an objective examination of the disclosure and the surrounding facts and circumstances, to be confidential in nature. Confidential Information includes, but is not limited to, trade secrets, know-how, inventions, techniques, processes, algorithms, software programs, schematics, designs, contracts, customer lists, financial information, product plans, and business information) of the other party. The Receiving Party must, at all times, both during the term of this Agreement and for 2 year period after termination keep in confidence and trust all of the Disclosing Party's Confidential Information received by it (except for any source code, which shall be kept in confidence and trust in perpetuity). The Receiving Party must not use the Confidential Information of the Disclosing Party other than as expressly permitted under the terms of this Agreement. The Receiving Party must take reasonable steps to prevent unauthorized disclosure or use of the Disclosing Party's Confidential Information and to prevent it from falling into the public domain or into the possession of unauthorized persons. The Receiving Party must not disclose Confidential Information of the Disclosing Party to any person or entity other than its officers, employees, contractors, and consultants who need access to the Confidential Information in order to effect the intent of this Agreement. Those officers, employees, contractors, or consultants of the Receiving Party needing access to the Confidential Information to effect the intent of this Agreement will be bound by the same obligations as the

Receiving Party. The Receiving Party must immediately give notice to the Disclosing Party of any unauthorized use or disclosure of Disclosing Party's Confidential Information. The Receiving Party agrees to assist the Disclosing Party to remedy such unauthorized use or disclosure of its Confidential Information.

- D. The obligations set forth in this section do not apply to the extent that Confidential Information includes information which is:
 1. Now or afterwards, through no unauthorized act or failure to act on the Receiving Party's part, in the public domain;
 2. was in the Receiving Party's possession before receipt from the Disclosing Party and obtained from a source other than the Disclosing Party and other than through the prior relationship of the Disclosing Party and the Receiving Party;
 3. furnished to the Receiving Party by a third party as a matter of right and without restriction on disclosure;
 4. furnished to others by the Disclosing Party without restriction on disclosure;
 5. independently developed by the Receiving Party without use of the Disclosing Party's Confidential Information; or
 6. required to be disclosed by the City pursuant to the California Public Records Act, or another public disclosure law of similar effect.
- E. Nothing in this Agreement prevents the Receiving Party from disclosing Confidential Information to the extent the Receiving Party is legally compelled to do so by any governmental, investigative, or judicial agency in accordance with proceedings over which the agency has jurisdiction; provided, however, that prior to any such disclosure, the Receiving Party must:
 1. Assert the confidential nature of the Confidential Information to the agency;
 2. immediately notify the Disclosing Party in writing of the agency's order or request to disclose; and
 3. cooperate fully with the Disclosing Party in protecting against any such disclosure.
 4. Subsection (E)(3) shall not require the Receiving Party to legally defend or be a party to any lawsuit or other legal action regarding disclosure of Confidential Information, the Parties expressly acknowledging that legal defense of any Confidential Information shall remain the duty of the Disclosing Party.

18. **WARRANTY**

- A. CONTRACTOR warrants that the access to the Platform will function for its intended use. Except for the foregoing warranty, CONTRACTOR nor its third-party providers make any warranties, terms, or conditions, either express, implied or statutory, as to the Platform or the Documentation or as to any other matter whatsoever with respect to the subject matter of

this Agreement, and the Platform or the Documentation and all other items furnished or made available under this Agreement are provided "as is". CONTRACTOR disclaims and excludes any and all warranties, whether statutory, express or implied, including without limitation the implied warranties of merchantability, fitness for a particular purpose, non-infringement, course of dealing, and course of performance.

19. INDEMNIFICATION

A. CONTRACTOR will indemnify, defend, and hold harmless CITY, the City Council, each member thereof, present and future, its officers, agents and employees from and against any and all liability, expenses, including defense costs and legal fees, and claims for damages arising under this Agreement, including, but not limited to, those arising from breach of contract, bodily injury, death, personal injury, property damage, loss of use, or property loss, which is the result of the negligent acts, errors, or omissions or other wrongful conduct of CONTRACTOR, CONTRACTOR's officers, agents or employees. The obligation to indemnify, defend and hold harmless includes, but is not limited to, any liability or expense, including defense costs and legal fees, arising from the negligent acts or omissions, or willful misconduct of CONTRACTOR, its officers, employees, agents, subcontractors or vendors. It is further agreed, CONTRACTOR's obligations to indemnify, defend and hold harmless will apply to the City Council, each member thereof, present and future, or its officers, agents and employees, except for liability resulting from the negligence or willful misconduct of CITY, its officers, employees or agents. In the event of any dispute between CONTRACTOR and CITY, as to whether liability arises from the negligent of the CITY or its officers, employees, agents, subcontractors or vendors, CONTRACTOR will be obligated to pay for CITY's defense until such time as a final judgment or binding resolution has been entered adjudicating the CITY as negligent or engaging in willful misconduct. CONTRACTOR will be entitled in the event of such a determination to any reimbursement of defense costs including but not limited to attorney's fees, expert fees and costs of litigation.

B. Torrance agrees to indemnify and defend Global, its affiliates, managers, directors, members, officers, agents, and employees (the "Global Indemnified Party") from and against all claims, damages, losses and expenses (including, but not limited to, reasonable attorneys' fees, court costs and the cost of appellate

proceedings) to which any such Global Indemnified Party may become subject, under any theory of liability whatsoever ("Claims"), insofar as such Claims (or actions in respect thereof) relate to, arise out of, or are caused by or based upon the gross negligence or intentional misconduct of Torrance, its council members, officers, employees, or agents, in connection with Torrance's use of the Software; provided that Torrance's use of the Software is in accordance with the terms of this Agreement.

20. NON-LIABILITY OF THE CITY'S OFFICERS AND EMPLOYEES

No officer or employee of the CITY will be personally liable to CONTRACTOR, in the event of any default or breach by the CITY or for any amount that may become due to CONTRACTOR.

21. LIMITATIONS OF CONTRACTOR LIABILITY

A. Neither CONTRACTOR nor its third-party providers will have any liability for incidental, consequential, indirect, special or punitive damages, or liabilities of any kind or for loss of revenue, loss of business, or other financial loss arising out of or in connection with this Agreement, regardless of the form of the action, whether in contract, tort (including negligence), strict product liability or otherwise, even if any representative of a party to this Agreement has been advised of the possibility of such damages and even if any limited remedy specified in this Agreement is considered to have failed of its essential purpose.

B. Customer acknowledges that the allocation of risk in this Agreement is consistent with software industry pattern and practice and is an integral part of the consideration for this Agreement, without which CONTRACTOR would be unable to provide the Platform and related services at the prices specified.

22. INSURANCE

A. CONTRACTOR and its subcontractors must maintain at its sole expense the following insurance, which will be full coverage not subject to self insurance provisions:

- (1) Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
 - (a) Primary Bodily Injury with limits of at least \$500,000 per person, \$1,000,000 per occurrence; and
 - (b) Primary Property Damage of at least \$250,000 per occurrence; or

- (c) Combined single limits of \$1,000,000 per occurrence.
 - (2) General Liability including coverage for premises, products and completed operations, independent contractors/vendors, personal injury and contractual obligations with combined single limits of coverage of at least \$1,000,000 per occurrence.
 - (3) Workers' Compensation with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.
 - (4) Employee Dishonesty Coverage with limits of at least \$100,000 with the City of Torrance Named as a loss payee on the policy.
- B. The insurance provided by CONTRACTOR will be primary and non-contributory.
 - C. CITY ("City of Torrance"), the Redevelopment Agency of the City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
 - D. CONTRACTOR must provide certificates of insurance and/or endorsements indicating appropriate coverage, to the City Clerk of the City of Torrance before the commencement of work.
 - E. Each insurance policy required by this Paragraph must contain a provision that no termination, cancellation or change of coverage can be made without thirty days notice to CITY.

23. SUFFICIENCY OF INSURERS

Insurance required by this Agreement will be satisfactory only if issued by companies admitted to do business in California, rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category Class VII or better, unless these requirements are waived by the Risk Manager of the CITY ("Risk Manager") due to unique circumstances. In the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to the CITY, the CONTRACTOR agrees that the minimum limits of any insurance policies and/or the performance bond required by this Agreement may be changed accordingly upon receipt of written notice from the Risk Manager; provided that CONTRACTOR will

have the right to appeal a determination of increased coverage by the Risk Manager to the City Council of the CITY within 10 days of receipt of notice from the Risk Manager.

24. CONFLICT OF INTEREST

- A. No officer or employee of the CITY may have any financial interest, direct or indirect, in this Agreement, nor may any officer or employee participate in any decision relating to the Agreement that effects the officer or employee's financial interest or the financial interest of any corporation, partnership or association in which the officer or employee is, directly or indirectly interested, in violation of any law, rule or regulation.
- B. No person may offer, give, or agree to give any officer or employee or former officer or employee, nor may any officer or employee solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any way pertaining to any program requirement, contract or subcontract, or to any solicitation or proposal.

25. NOTICE

- A. All notices, requests, demands, or other communications under this Agreement will be in writing. Notice will be sufficiently given for all purposes as follows:
 - (1) Personal delivery. When personally delivered to the recipient: notice is effective on delivery.
 - (2) First Class mail. When mailed first class to the last address of the recipient known to the party giving notice: notice is effective three mail delivery days after deposit in an United States Postal Service office or mailbox.
 - (3) Certified mail. When mailed certified mail, return receipt requested: notice is effective on receipt, if delivery is confirmed by a return receipt.
 - (4) Overnight delivery. When delivered by an overnight delivery service, charges prepaid or charged to the sender's account: notice is effective on delivery, if delivery is confirmed by the delivery service.

- (5) Facsimile transmission. When sent by fax to the last fax number of the recipient known to the party giving notice: notice is effective on receipt. Any notice given by fax will be deemed received on the next business day if it is received after 5:00 p.m. (recipient's time) or on a non-business day.

Addresses for purpose of giving notice are as follows:

CONSULTANT: Global Water Management, LLC
21410 N. 19th Avenue, Suite 201
Phoenix, AZ 85027

Fax: 623 518-4011

WITH A COPY TO:

Andrew Abraham
Burch & Cracchiolo, P.A.
702 E. Osborn Rd., Suite 200
Phoenix, AZ 85014

Fax: (602) 234-0341

CITY:

City Clerk
City of Torrance
3031 Torrance Boulevard
Torrance, CA 90509-2970

Fax: (310) 618-2931

- B. Any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified, will be deemed effective as of the first date the notice was refused, unclaimed or deemed undeliverable by the postal authorities, messenger or overnight delivery service.
- C. Either party may change its address or fax number by giving the other party notice of the change in any manner permitted by this Agreement.

26. PROHIBITION AGAINST ASSIGNMENT AND SUBCONTRACTING

This Agreement and all exhibits are binding on the heirs, successors, and assigns of the parties. The Agreement may not be assigned or subcontracted by either the CITY or CONTRACTOR without the prior written consent of the other, which will not be unreasonably withheld, conditioned, or delayed.

27. INTEGRATION; AMENDMENT

This Agreement represents the entire understanding of the CITY and CONTRACTOR as to those matters contained in it. No prior oral or written understanding will be of any force or effect with respect to the terms of this Agreement. The Agreement may not be modified or altered except in writing signed by both parties.

28. INTERPRETATION

The terms of this Agreement should be construed in accordance with the meaning of the language used and should not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction that might otherwise apply.

29. SEVERABILITY

If any part of this Agreement is found to be in conflict with applicable laws, that part will be inoperative, null and void insofar as it is in conflict with any applicable laws, but the remainder of the Agreement will remain in full force and effect.

30. TIME OF ESSENCE

Time is of the essence in the performance of this Agreement.

31. GOVERNING LAW; JURISDICTION

This Agreement will be administered and interpreted under the laws of the State of California. Jurisdiction of any litigation arising from the Agreement will be in Los Angeles County, California.

32. COMPLIANCE WITH STATUTES AND REGULATIONS

CONTRACTOR will be knowledgeable of and will comply with all applicable federal, state, county and city statutes, rules, regulations, ordinances and orders.

33. WAIVER OF BREACH

No delay or omission in the exercise of any right or remedy by a nondefaulting party on any default will impair the right or remedy or be construed as a waiver. A party's consent or approval of any act by the other party requiring the party's consent or approval will not be deemed to waive or render unnecessary the other party's consent to or approval of any subsequent act. Any waiver by either party of any default must be in writing and will not be a waiver of any other default concerning the same or any other provision of this Agreement.

34. ATTORNEY'S FEES

Except as set forth in Paragraph 18, in any dispute, litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this Agreement (whether in contract, tort or both) or seeks a declaration of any rights or obligations under this Agreement, the prevailing party will be awarded reasonable attorney's fees, together with any costs and expenses, to resolve the dispute and to enforce any judgment.

35. EXHIBITS

All exhibits identified in this Agreement are incorporated into the Agreement by this reference.

36. CONTRACTOR'S AUTHORITY TO EXECUTE

The persons executing this Agreement on behalf of the CONTRACTOR warrant that (i) the CONTRACTOR is duly organized and existing; (ii) they are duly authorized to execute this Agreement on behalf of the CONTRACTOR; (iii) by so executing this Agreement, the CONTRACTOR is formally bound to the provisions of this Agreement; and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which the CONTRACTOR is bound.

CITY OF TORRANCE,
a Municipal Corporation

Global Water Management, LLC
a Delaware limited liability company

Frank Scotto, Mayor

By: _____
Cindy M. Liles, Treasurer

ATTEST:

Sue Herbers, City Clerk

APPROVED AS TO FORM:

JOHN L. FELLOWS III
City Attorney

By: _____

Attachments: Exhibit A: RFP
 Exhibit B: Proposal

Revised: 10/29/2008

EXHIBIT A
REQUEST FOR PROPOSALS
[To be attached]

EXHIBIT B

PROPOSAL

[To be attached]



Request for Proposal

City of Torrance | 3031 Torrance Blvd, Torrance CA 90503 | www.TorranceCA.Gov

RFP No. 2010-05

Request for Proposal (RFP) to Provide Utility Billing Services for the City of Torrance

PROPOSAL SUBMITTAL INFORMATION

Proposals may be mailed or hand delivered. No faxed proposals will be accepted.

Late proposals will not be accepted.

Location: Office of the City Clerk
3031 Torrance Blvd.
Torrance, CA 90503

Date: Thursday, April 29, 2010

Time Deadline: **2:00 P.M.**

Proposals will be opened and publicly read aloud at 2:15 PM in the Council Chambers.

An original plus one (1) printed copy and an electronic version format on a Compact Disc (CD) or Flash Drive in a sealed in an envelope and marked with the RFP number and title must be submitted by the deadline. Your submittal must include the following:

- Vendor's Response (Section III of this document) on the forms provided. If additional space is required, please attach additional pages.
- Vendors Affidavit (Attachment 1)

Notice of Mandatory Pre-Proposal Conference

The City will conduct a mandatory briefing session for prospective proposers.

Questions brought up at the pre-proposal conference will be answered to the extent possible at that time. Questions of consequence will be recorded and questions and answers will be mailed to all parties that have attended the pre-proposal conference. Any changes, interpretations, or clarifications considered necessary by the City in response to proposers' questions will be issued in writing as addenda and mailed or delivered to all parties that have attended the pre-proposal conference. Only answers issued in writing by the City of Torrance will be binding on the City. Oral and other interpretations or clarifications, including those provided at the pre-proposal conference, will be without legal effect.

Please send an email of interest indicating your company plans on attending the mandatory pre-proposal meeting to: revenue@torranceca.gov

Location: City of Torrance Finance Department
3031 Torrance Blvd., 2nd Floor
Torrance CA 90503

Date: Wednesday, April 7, 2010
Time: 3:00 PM

Questions regarding this Request for Proposal should be directed to:
Kenneth Flewellyn, Assistant Finance Director
310-618-5850

RFP No. 2010- 05	Request for Proposal (RFP) to Provide Utility Billing Services for the City of Torrance
SECTION I PROPOSAL INSTRUCTIONS AND INFORMATION	

Notice is hereby given that sealed proposals will be received in the office of the City Clerk, City Hall, 3031 Torrance Boulevard, Torrance, CA, until 2:00 p.m. on Thursday, April 29, 2010, and will be opened and publicly read aloud at 2:15 p.m. on the same date in the Council Chambers, Torrance City Hall. You are invited to be present at the opening of proposals. An original and one (1) printed copy of each proposal must be submitted in a sealed envelope and clearly marked: "Proposal to Provide Utility Billing Services for the City of Torrance, RFP2010-05". Additionally, proposers are to submit an *electronic version format on a Compact Disc (CD) or Flash Drive*.

Proposal Form:

The proposal must be made on the form provided for that purpose, enclosed in a sealed envelope, and marked "Proposal to Provide Utility Billing Services for the City of Torrance RFP2010-05" and addressed to the City Clerk, City of Torrance, 3031 Torrance CA. 90503. If an individual makes the proposal, it must be signed by that individual, and an address, telephone (and fax number if available) must be given. If made by a business entity, it must be signed by the person(s) authorized to execute agreements and bind the entity to contracts. A full business address, telephone (and fax number if available) must be given. No telegraphic, fax or telephonic proposal will be considered.

Blank spaces in the proposal form must be filled in; using ink, indelible pencil, or typewriter, and the text of the proposal form must not be changed. No additions to the form may be made. Any unauthorized conditions, limitations, or provisos attached to a proposal will render it informal and may cause its rejection. Alterations by erasure or interlineations must be explained or noted in the proposal form over the signature of the Proposer.

Mandatory Pre-Proposal Conference:

Vendors intending to submit a proposal on this requirement must ensure that a representative from their company is in attendance at the mandatory pre-bid conference. Vendors submitting proposals without attending this conference will be disqualified. No exceptions will be allowed.

Reservation:

The City reserves the right to revise or amend these specifications prior to the date set for opening proposals. Revisions and amendments, if any, will be announced by an addendum to this RFP. If the revisions require additional time to enable Proposers to respond, the City may postpone the opening date accordingly. In such case, the addendum will include an announcement of the new opening date.

All addenda must be attached to the proposal. Failure to attach any addendum may render the proposal non-responsive and cause it to be rejected.

The City Council reserves the right to reject any and all proposals received, to take all proposals under advisement for a period not to exceed ninety (90) days after the date of the opening, to waive any informality on any proposal, and to be the sole judge of the relative merits of the material and or service mentioned in the respective proposals received. The City reserves the right to reject any proposal not accompanied with all data or information required.

This Request for Proposal (RFP) does not commit the City to award a contract or to pay any cost incurred in the preparation of a proposal. All responses to this RFP document become the property of the City of Torrance.

Affidavit:

An affidavit form is enclosed. It must be completed signifying that the proposal is genuine and not collusive or made in the interest or on behalf of any person not named in the proposal, that the Proposer has not directly or indirectly induced or solicited any other Proposer to put in a sham proposal or any other person, firm, or corporation to refrain from proposing, and that the Proposer has not in any manner sought by collusion to secure for itself an advantage over any other Proposer. Any proposal submitted without an affidavit or in violation of this requirement will be rejected. (Attachment 1)

The Contract:

The Proposer to whom the award is made will be required to enter into a written contract with the City of Torrance.

A copy of this RFP will be attached to and become a part of the contract. Attached is a draft copy of the City's standardized contract, which will be modified to reflect the awarded proposal.

Standards for Evaluation of Proposals:

The City will be the sole determiner of suitability to the City's needs. Proposals will be rated according to their completeness and understanding of the City's needs, conformance to the requirements of the technical specifications, prior experience with comparable proposals, financial capabilities, delivery, and cost.

The City will use the following priorities, as well as pricing, in determining which proposal best meets the needs of the City.

Description	Possible Points
Operational Objective	25 points
Customer Service Function	35 points
Proposal Amount	40 points
Total	100 Points

Time Line:

Description	Date
RFQ Mailed to Prospective Proposers	March 25, 2010
Mandatory Pre-Proposal Meeting	April 7, 2010
RFP Due (Submittal) Date	April 29 2010
Begin RFP Review Process	April 30, 2010
Interview Best Qualified Vendors	May 12 & 13, 2010
Council Approval for Vendor Selection	May 25, 2010
Begin Contract Negotiation	May 27, 2010
Council Approval & Award Contract	June 22, 2010
Begin Contract Implementation	July 1, 2010
Go Live on New System	January 3, 2011

Errors and Omissions:

The Proposer will not be allowed to take advantage of any errors and/or omissions in these specifications or in the Proposer's specifications submitted with its proposal. Full instruction will always be given when errors or omissions are discovered.

The Contract:

The Proposer to whom the award is made will be required to enter into a written contract (Attachment A) with the City of Torrance. A copy of this request for proposals and the Proposer's accepted proposal will be attached to and become a part of the contract.

Contract Term:

The initial contract will be four (4) years starting January 3, 2011 and ending January 2, 2015. If approved by the City Council, the City may extend the contract with two (2) additional three (3)-year extensions (January 3, 2015 to January 2, 2018) and (January 3, 2018 to January 2, 2021).

Consumer Price Index:

Commencing in the second year (January 3, 2012), and each subsequent year, the contract will be increased by the Consumer Price Index for urban wage earners and clerical workers (CPI-W) for the Los Angeles area (April to April).

Background:

The City of Torrance is situated on the western side of Los Angeles County. It is bordered by the Palos Verdes Peninsula on the south, the City of Gardena on the north, the City of Redondo Beach on the north and west boundaries, the City of Lomita on the east and the Pacific Ocean on the west. The City encompasses an area of approximately 21 square miles and has an estimated population of approximately 149,111, which makes it the sixth largest city in Los Angeles County.

An outside contractor currently provides the City with comprehensive utility billing services for the City's Water, Refuse (including recycling) and Sewer services defined herein. The City currently provides water and sewer services to residential, commercial, and industrial users to the majority of the City and provides residential refuse and recycling services. There are approximately 25,300 bi-monthly water billing customers, 600 monthly water billing customers and 8,000 refuse only customers. Water and Sewer is billed on a bi-monthly basis for residential customers and monthly for certain identified large water users.

The billing cycle coincides with scheduled daily water meter reading routes; with each residential water meter being read within a bi-monthly cycle and certain identified large water user's meters being read within a monthly cycle. Bills will be generated and mailed within two working days of receiving meter reading information.

RFP No. 2010- 05	Request for Proposal (RFP) to Provide Utility Billing Services for the City of Torrance
SECTION II TECHNICAL REQUIREMENTS	

Introduction:

The City is seeking proposals for a comprehensive utility billing service that includes customer service and collection functions for Water, Sewer and Refuse. The City will be responsible for all meter reading and meter maintenance.

The City will work with the selected vendor by providing an electronic interface of its approximately 34,000 accounts, including historical information if requested. Additionally, the City will provide the City's current service provider's office policies and procedures. The City must approve all policies and procedures related to this service.

This RFP is intended to be as descriptive as possible. Proposers may not take advantage of omissions or oversights in this document. Proposers must supply products and services that meet or exceed the requirements of this RFP. In the event of a dispute over installation or performance, the needs of the City of Torrance will govern.

Scope of Work:

The selected vendor will be responsible for all work and expenses relating to the proper design, manufacture, test, delivery, storage and installation of a customer data base and comprehensive utility billing service for water, sewer and refuse.

The selected vendor will provide the City with a schedule and a work plan for approval, prior to the beginning of work.

The selected vendor will be responsible for the storage and security of all equipment, tools, and other supplies used in providing a customer data base and comprehensive utility billing services for water, sewer and refuse.

Subcontracting is allowed, however each subcontractor must be identified and pertinent information provided. The performance of the subcontractor is the sole responsibility of the proposer and the relationships with the subcontractors must be invisible to the City. All subcontractors must be in compliance with the City's business license code and insurance requirements.

Provide monthly and bi-monthly residential billings for Water, Sewer and Refuse

Provide monthly billing for commercial water and sewer accounts (certain identified large water users)

Provide a user-friendly bill as prescribed by the City of Torrance

Provide and distribute messages, notifications, and bill inserts

Customized bills and/or management reports as required (appropriate units of measurement, quantities, and dollars)

Accommodate multi-tiered billing, including conservation measures and/or changes in the rate structure, including proration of rates

Provide a discount rate structure for senior citizens/low income and disabled customers as prescribed by the City

Provide wire-transfer daily cash collections to the City

Provide effective and efficient interface with the billing information system (personnel, computers, and by telephone) as prescribed by the City of Torrance

Provide interface with the following devices:

- Neptune Handheld meter reading devices
- N Sight (formerly Equinox) Compatible for Automated Meter Readings

Customer Service:

Provide the following payment service to the City of Torrance customers:

- E-Bill Paperless Billing
- Pay by Phone
- Pay by Mail
- Pay by Debit/Credit Card
- Pay at City of Torrance

Provide Interactive Voice Response (IVR) System application for Torrance's customers

Provide Internet payment and customer inquiry capabilities (see above)

Must be able to respond and answer customer inquiries within a satisfactory time frame (70% of the answered calls within 60 seconds and must maintain fewer than 7% of dropped calls)

Route telephone calls to the appropriate City staff

Provide the City with access to all account information including recorded time tracking, monitoring device reports etc., with licensing for five concurrent users (Must include direct, view only and add notes access by City employees to all functions of customer accounts)

Provide effective and efficient coordination and communication with the City

Provide a satisfactory response time to the customer (to be determined prior to start of contract term)

Provide interface and electronic transfer of information between billing, meter reading, or customer service to the City

Provide electronic submission (via IVR, email, etc.) of customer service requests to City using either City approved form or in a format that can be interfaced

Designate personnel as a service coordinator/liason to the City

Incorporate the City of Torrance policy for non-payment shut off notices

Provide a 24 Hour call center with the ability to notify the appropriate City departments in case of emergency

Provide a policy for appeal hearings, adjustments, and /or resolutions

Provide electronic customer payment policy

Provide a full service office located in the City of Torrance for customer payments

Provide method/ability to receive payments 24 hours a day, seven days per week

Customer service hours of operations must be at a minimum, from 7:30am to 5:30pm Monday through Friday, Pacific Standard Time

Must have answering service for non operating hours that will notify the appropriate City staff

Incorporate the City's payment plan policy for delinquent and or slow moving accounts

Incorporate City policies with the company's existing policies.

Reports

The City requires that the awarded vendor submit reports to the City on a monthly basis and as requested by the City as indicated below. All reports are to be "Windows" based and compatible with the City's current version of Microsoft software, and have an interface link to the City's New World financial system.

Generate detailed collection and financial reports by geographical areas, by account, by service type, largest users, aging reports, delinquencies, etc.

Provide the City with customer service related reports which reflect the number of customer inquiries; type of customer inquiries; inquiries by location; response time to inquiries, and actions taken to complete inquiry

A comprehensive customer complaint tracking system

Process on how payments are credited to the City

Production and coordination of trouble reports (out of range, meter or facility damage)

Coordination of information into the system (new meters, route changes, customer address changes, water quality etc.)

Management reports (customer, usage, classification, billings), including staff training on how to run/create their own reports

Provide notice and supporting documentation of any regulatory changes affecting either City interests, or any of Proposer's assertions herein

Provide customer service reports by the first week of the following month on how many meters were read, reread, high bill inquires/investigation, services turn on/off, late notifications and non-payment turn-offs.

Cash Collections

Proposers must describe their approach to sending the City daily cash collections

Proposers must describe their policy and procedures on reconciling cash received for the City of Torrance

Proposers must describe their policy and procedures in separating the City of Torrance monies from that of any and other agencies that the proposer is now collecting for or may collect for in the future

Maintain un-collectable accounts at no more than 0.2% of total monthly revenues

Proposal must describe in detail the company's policy on handling aged receivables.

RFP No. 2010- 05	Request for Proposal (RFP) to Provide Utility Billing Services for the City of Torrance
SECTION III PROPOSAL SUBMITTAL	

FAILURE TO COMPLETE ALL ITEMS IN THIS SECTION MAY INVALIDATE BID.

In accordance with your "Invitation to Bid", the following bid proposal is submitted to the City of Torrance.

Proposal Submitted By:

Name of Company

Address

City/State/Zip Code

Telephone Number/Fax Number

Printed Name/Title

Signature

Date

Contact for Additional Information:

Please provide the name of the individual at your company to contact for any additional information

Name

Title

Telephone Number/Fax Number

Form of Business Organization: Please indicate the following (check one);

Corporation _____ Partnership _____ Sole Proprietorship _____ Other: _____

Business History:

How long have you been in business under your current name and form of business organization?

_____ Years

If less than three (3) years and your company was in business under a different name, what was that name?

Addenda Received:

Please indicate addenda information you have received regarding this bid:

Addendum No. _____	Date Received: _____
Addendum No. _____	Date Received: _____
Addendum No. _____	Date Received: _____
Addendum No. _____	Date Received: _____

_____ No Addenda received regarding this bid.

Payment Terms: The City of Torrance Payment terms are Net 30. The City does not make pre-payments, or pay upon receipt.

Do you offer any discounted invoice terms? _____

Renewal Option:

Please state, if requested by the City, if your company would agree to a renewal of this contract with price, terms and conditions unchanged.

Yes _____ we would agree to add January 3, 2015 to January 2, 2018

Yes _____ we would agree to add January 3, 2018 to January 2, 2021

No _____ we would not be interested in renewing this contract.

Sub Contractors:

Do you plan to sub-contract any portion of this contract? Yes _____ No _____

If yes, Please provide that company information below:

Sub Contractor's Information:

If subcontractor(s) is to be used in the performance of this project, please provide the following information:

Company Name: _____

Contact: _____

Address: _____

Telephone: _____

Company Name: _____

Contact: _____

Address: _____

Telephone: _____

Company Name: _____

Contact: _____

Address: _____

Telephone: _____

References:

Please supply the names of companies/agencies for which you recently supplied comparable services as requested in this RFP.

Name of Company/Agency	Address	Person to contact/Telephone No.

RFP- Submittal Requirement Acknowledgement		
Proposer must complete each item in the Proposer's Comments Column by answering the question in the space provided or by indicating the item is answered on an additional sheet and referencing that page number.		
Requirement	Proposer's Comments Column	Additional Sheet Reference Page #
Describe your company's call center		
Describe your company's Interactive Voice Response (IVR) System		
Company Background		
Provide proof of financial stability (audited financial statements – past two years)		
Proposed delivery and installation schedule		
Will you provide monthly and bi-monthly residential billings for Water, Sewer and Refuse?		
Will you provide monthly billing for commercial water and sewer accounts?		
Provide a sample of a user friendly bill		
Will you provide and distribute messages, notifications, and bill inserts?		
Will you customize bills and/or management reports (unit of measure, quantities, and dollars)?		
Will you accommodate multi-tiered billing, including conservation measures and/or changes in the rate structure, including proration of rates?		
Will you provide a discount rate structure for senior citizens/ low income and disabled customers?		
Will you provide wire-transfer daily cash collections?		
Will you provide an effective and efficient interface with the billing information system (personnel, computers, and by telephone) as prescribed by the City of Torrance		
Will you provide interface with Neptune Handheld meter reading devices and N Sight (formerly Equinox) compatible for Automated Meter Readings?		
Will you provide payment service to the City of Torrance customers using the methods listed below? <ul style="list-style-type: none"> • E-Bill Paperless Billing • Pay by Phone • Pay by Mail • Pay by Debit/Credit Card • Pay at City of Torrance 		
Will you provide Internet payment and customer inquiry capabilities?		

RFP- Submittal Requirement Acknowledgement (continued)		
Proposer must complete each item in the Proposer's Comments Column by answering the question in the space provided or by indicating the item is answered on an additional sheet and referencing that page number.		
Requirement	Proposer's Comments Column	Additional Sheet Reference Page #
Will you respond and answer customer inquiries within a satisfactory time frame (70% of the answered calls within 60 seconds and must maintain fewer than 7% of dropped calls)?		
Will you route telephone calls to the appropriate City staff?		
Will you provide the City with access to all account information including recorded time tracking, monitoring device reports etc., with licensing for five concurrent users (Must include direct, view only and add notes: access by City employees to all functions of customer accounts)		
How will you provide effective and efficient coordination and communication with the City?		
How do you provide a satisfactory response time to the customer?		
Describe how you will provide interface and electronic transfer of information between billing, meter reading, or customer service to the City		
How will you provide electronic submission (via IVR, email, etc.) of customer service requests to City using either City approved form or in a format that can be interfaced?		
Will you designate personnel as a service coordinator/liaison to the City?		
Will you incorporate the City of Torrance policy for non-payment shut off notices?		
How will you provide a 24 Hour call center with the ability to notify the appropriate City departments in case of emergency?		
Will you provide a policy for appeal hearings, adjustments, and /or resolutions?		
Will you provide electronic customer payment policy?		
How will you provide a full service office located in the City of Torrance for customer payments?		
How will you receive payments 24 hours a day, seven days per week?		
Will you provide customer service hours of operation at a minimum, from 7:30am to 5:30pm Monday through Friday, Pacific Standard Time?		
What are your customer services hours of operation?		

RFP- Submittal Requirement Acknowledgement (continued)		
Proposer must complete each item in the Proposer's Comments Column by answering the question in the space provided or by indicating the item is answered on an additional sheet and referencing that page number.		
Requirement	Proposer's Comments Column	Additional Sheet Reference Page #
Do you have or will you have an answering service for non operating hours that will notify the appropriate City staff?		
Will you incorporate the City's payment plan policy for delinquent and or slow moving accounts. Incorporate City policies with the company's existing policies?		
Will you provide monthly and on demand reports to the City that are "Windows" based and compatible with the City's current version of Microsoft software, and have an interface link to the City's New World financial system?		
Provide sample of reports as requested in this RFP - Detailed collection and financial reports by geographical areas, by account, by service type, largest users, aging reports, delinquencies, etc.		
Provide sample of reports as requested in this RFP - Customer service related reports which reflect the number of customer inquiries; type of customer inquiries; inquiries by location; response time to inquiries, and actions taken to complete inquiry		
Describe and show samples of your customer complaint tracking system		
Describe how payments will be credited to the City		
Describe the production and coordination of trouble reports (out of range, meter or facility damage)		
Describe how you handle the coordination of information into the system (new meters, route changes, customer address changes, water quality etc.)		
Provide a sample of reports as requested in this RFP- Management reports (customer, usage, classification, billings), including staff training on how to run/create their own reports		
How will you provide notice and supporting documentation of any regulatory changes affecting either City interests		
Provide sample of reports as requested in this RFP- Customer service reports on how many meters were read, reread, high bill inquires/investigation, services turn on/off, late notifications and non-payment turn-offs.		

RFP- Submittal Requirement Acknowledgement (continued)		
Proposer must complete each item in the Proposer's Comments Column by answering the question in the space provided or by indicating the item is answered on an additional sheet and referencing that page number.		
Requirement	Proposer's Comments Column	Additional Sheet Reference Page #
Describe your approach to sending the City daily cash collections		
Describe your policy and procedures on reconciling cash received for the City of Torrance		
Describe your policy and procedures for separating the City of Torrance monies from that of any and other agencies that the proposer is now collecting for or may collect for in the future		
How will you maintain un-collectable accounts at no more than 0.2% of total monthly revenues?		
Describe in detail your company's policy on handling aged receivables.		

RFP Submittal - Price Proposal	
Monthly Customer Service Contract	\$
Monthly cost of operating a local payment center in Torrance	\$
Estimated Monthly Postage	\$
Costs of implementation (One-time cost for start-up conversion)	\$

STATE OF CALIFORNIA

PROPOSER'S AFFIDAVIT

COUNTY OF LOS ANGELES

_____ being first duly sworn, deposes and says:

1. That he/she is the _____ of _____
(Title of Office) (Name of Company)

Hereinafter called "Proposer", who has submitted to the City of Torrance a proposal for

(Title of RFP)

2. That the proposal is genuine; that all statements of fact in the proposal are true;
3. That the proposal was not made in the interest or behalf of any person, partnership, company, association, organization or corporation not named or disclosed;
4. That the Proposer did not, directly or indirectly, induce solicit or agree with anyone else to submit a false or sham proposal, to refrain from proposing, or to withdraw his proposal, to raise or fix the proposal price of the Proposer or of anyone else, or to raise or fix any overhead, profit or cost element of the Proposer's price or the price of anyone else; and did not attempt to induce action prejudicial to the interest of the City of Torrance, or of any other Proposer, or anyone else interested in the proposed contract;
5. That the Proposer has not in any other manner sought by collusion to secure for itself an advantage over the other Proposer or to induce action prejudicial to the interests of the City of Torrance, or of any other Proposer or of anyone else interested in the proposed contract;
6. That the Proposer has not accepted any proposal from any subcontractor or materialman through any proposal depository, the bylaws, rules or regulations of which prohibit or prevent the Proposer from considering any proposal from any subcontractor or material man, which is not processed through that proposal depository, or which prevent any subcontractor or materialman from proposing to any contractor who does not use the facilities of or accept proposals from or through such proposal depository;
7. That the Proposer did not, directly or indirectly, submit the Proposer's proposal price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, proposal depository, or to any member or agent thereof, or to any individual or group of individuals, except to the City of Torrance, or to any person or persons who have a partnership or other financial interest with said Proposer in its business.
8. That the Proposer has not been debarred from participation in any State or Federal works project.

Dated this _____ day of _____, 20_____.

(Proposer Signature)

(Title)

CONTRACT SERVICES AGREEMENT

This CONTRACT SERVICES AGREEMENT ("Agreement") is made and entered into as of Date (the "Effective Date"), by and between the CITY OF TORRANCE, a municipal corporation ("CITY"), and Contractor Name, type of entity ("CONTRACTOR").

RECITALS:

- A. CITY wishes to retain the services of an experienced and qualified CONTRACTOR to insert brief description of services.
- B. CONTRACTOR represents that it is qualified to perform those services.

AGREEMENT:

1. **SERVICES TO BE PERFORMED BY CONTRACTOR**
CONTRACTOR will provide the services listed in the Scope of Services attached as Exhibit A. CONTRACTOR warrants that all work and services set forth in the Scope of Services will be performed in a competent, professional and satisfactory manner.
2. **TERM**
Unless earlier terminated in accordance with Paragraph 4 below, this Agreement will continue in full force and effect from the Effective Date through
3. **COMPENSATION**
 - A. **CONTRACTOR's Fee.**

For services rendered pursuant to this Agreement, CONTRACTOR will be paid in accordance with the Compensation Schedule attached as Exhibit B, provided, however, that in no event will the total amount of money paid the CONTRACTOR, for services initially contemplated by this Agreement, exceed the sum of \$insert dollar amount ("Agreement Sum"), unless otherwise first approved in writing by CITY.

B. Schedule of Payment.

Provided that the CONTRACTOR is not in default under the terms of this Agreement, upon presentation of an invoice, CONTRACTOR will be paid the fees described in Paragraph 3.A. above, according to the Compensation Schedule. Payment will be due within 30 days after the date of the invoice.

4. **TERMINATION OF AGREEMENT**

A. Termination by CITY for Convenience.

1. CITY may, at any time, terminate the Agreement for CITY's convenience and without cause.
2. Upon receipt of written notice from CITY of such termination for CITY's convenience, CONTRACTOR will:
 - a. cease operations as directed by CITY in the notice;
 - b. take actions necessary, or that CITY may direct, for the protection and preservation of the work; and
 - c. except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
3. In case of such termination for CITY's convenience, CONTRACTOR will be entitled to receive payment for work executed; and costs incurred by reason of such termination, along with reasonable overhead and profit on the work not executed.

B. Termination for Cause.

1. If either party fails to perform any term, covenant or condition in this Agreement and that failure continues for 15 calendar days after the nondefaulting party gives the defaulting party written notice of the failure to perform, this Agreement may be terminated for cause; provided, however, that if during the notice period the defaulting party has promptly commenced and continues diligent efforts to remedy the default, the defaulting party will have such additional time as is reasonably necessary to remedy the default.
2. In the event this Agreement is terminated for cause by the default of the CONTRACTOR, the CITY may, at the expense of the CONTRACTOR and its surety, complete this Agreement or cause it to be completed. Any check or bond delivered to the CITY in connection with this Agreement, and the money payable thereon, will be forfeited to and remain the property of the CITY. All moneys

due the CONTRACTOR under the terms of this Agreement will be retained by the CITY, but the retention will not release the CONTRACTOR and its surety from liability for the default. Under these circumstances, however, the CONTRACTOR and its surety will be credited with the amount of money retained, toward any amount by which the cost of completion exceeds the Agreement Sum and any amount authorized for extra services.

3. Termination for cause will not affect or terminate any of the rights of the CITY as against the CONTRACTOR or its surety then existing, or which may thereafter accrue because of the default; this provision is in addition to all other rights and remedies available to the CITY under law.

C. Termination for Breach of Law.

In the event the CONTRACTOR or any of its officers, directors, shareholders, employees, agents, subsidiaries or affiliates is convicted (i) of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of a contract or subcontract; (ii) under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a public consultant or contractor; (iii) under state or federal antitrust statutes arising out of the submission of bids or proposals; or (iv) of violation of Paragraph 19 of this Agreement; or for any other cause the CITY determines to be so serious and compelling as to affect CONTRACTOR's responsibility as a public consultant or contractor, including but not limited to, debarment by another governmental agency, then the CITY reserves the unilateral right to terminate this Agreement or to impose such other sanctions (which may include financial sanctions, temporary suspensions or any other condition deemed appropriate short of termination) as it deems proper. The CITY will not take action until CONTRACTOR has been given notice and an opportunity to present evidence in mitigation.

5. **FORCE MAJEURE**

If any party fails to perform its obligations because of strikes, lockouts, labor disputes, embargoes, acts of God, inability to obtain labor or materials or reasonable substitutes for labor or materials, governmental restrictions, governmental regulations, governmental control, judicial orders, enemy or hostile governmental action, civil commotion, fire or other casualty, or other causes beyond the reasonable control of the party obligated to perform, then that party's performance shall be excused for a period equal to the period of such cause for failure to perform.

6. **RETENTION OF FUNDS**

CONTRACTOR authorizes CITY to deduct from any amount payable to CONTRACTOR (whether or not arising out of this Agreement) any amounts the payment of which may be in dispute or that are necessary to compensate CITY for any losses, costs, liabilities, or damages suffered by CITY, and all amounts for which CITY may be liable to third parties, by reason of CONTRACTOR's acts or omissions in performing or failing to perform CONTRACTOR's obligations under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by CONTRACTOR, or any indebtedness exists that appears to be the basis for a claim of lien, CITY may withhold from any payment due, without liability for interest because of the withholding, an amount sufficient to cover the claim. The failure of CITY to exercise the right to deduct or to withhold will not, however, affect the obligations of CONTRACTOR to insure, indemnify, and protect CITY as elsewhere provided in this Agreement.

7. CITY REPRESENTATIVE

City Representative is designated as the "City Representative," authorized to act in its behalf with respect to the work and services specified in this Agreement and to make all decisions in connection with this Agreement. Whenever approval, directions, or other actions are required by CITY under this Agreement, those actions will be taken by the City Representative, unless otherwise stated. The City Manager has the right to designate another City Representative at any time, by providing notice to CONTRACTOR.

8. CONTRACTOR REPRESENTATIVE(S)

The following principal(s) of CONTRACTOR are designated as being the principal(s) and representative(s) of CONTRACTOR authorized to act in its behalf with respect to the work specified in this Agreement and make all decisions in connection with this Agreement:

Representative 1
Representative 2

9. INDEPENDENT CONTRACTOR

The CONTRACTOR is, and at all times will remain as to CITY, a wholly independent contractor. Neither CITY nor any of its agents will have control over the conduct of the CONTRACTOR or any of the CONTRACTOR's employees, except as otherwise set forth in this Agreement. The CONTRACTOR may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of CITY.

10. **BUSINESS LICENSE**

The CONTRACTOR must obtain a City business license prior to the start of work under this Agreement, unless CONTRACTOR is qualified for an exemption.

11. **OTHER LICENSES AND PERMITS**

CONTRACTOR warrants that it has all professional, contracting and other permits and licenses required to undertake the work contemplated by this Agreement.

12. **FAMILIARITY WITH WORK**

By executing this Agreement, CONTRACTOR warrants that CONTRACTOR (a) has thoroughly investigated and considered the scope of services to be performed, (b) has carefully considered how the services should be performed, and (c) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, CONTRACTOR warrants that CONTRACTOR has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services set forth in this Agreement. Should CONTRACTOR discover any latent or unknown conditions that will materially affect the performance of the services set forth in this Agreement, CONTRACTOR must immediately inform CITY of that fact and may not proceed except at CONTRACTOR's risk until written instructions are received from CITY.

13. **CARE OF WORK**

CONTRACTOR must adopt reasonable methods during the term of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and other components to prevent losses or damages, and will be responsible for all damages, to persons or property, until acceptance of the work by CITY, except those losses or damages as may be caused by CITY's own negligence.

14. **CONTRACTOR'S ACCOUNTING RECORDS; OTHER PROJECT RECORDS**

Records of the CONTRACTOR's time pertaining to the project, and records of accounts between CITY and the CONTRACTOR, will be kept on a generally recognized accounting basis. CONTRACTOR will also maintain all other records, including without limitation specifications, drawings, progress reports and the like, relating to the project. All records will be available to CITY during normal working hours. CONTRACTOR will maintain these records for three years after final payment.

15. **INDEMNIFICATION**

CONTRACTOR will indemnify, defend, and hold harmless CITY, the Redevelopment Agency of the City of Torrance, the City Council, each member thereof, present and future, members of boards and commissions, its officers, agents, employees and volunteers from and against any and all liability, expenses, including defense costs and legal fees, and claims for damages

whatsoever, including, but not limited to, those arising from breach of contract, bodily injury, death, personal injury, property damage, loss of use, or property loss however the same may be caused and regardless of the responsibility for negligence. The obligation to indemnify, defend and hold harmless includes, but is not limited to, any liability or expense, including defense costs and legal fees, arising from the negligent acts or omissions, or willful misconduct of CONTRACTOR, its officers, employees, agents, subcontractors or vendors. It is further agreed, CONTRACTOR's obligations to indemnify, defend and hold harmless will apply even in the event of concurrent negligence on the part of CITY, the City Council, each member thereof, present and future, or its officers, agents and employees, except for liability resulting solely from the negligence or willful misconduct of CITY, its officers, employees or agents. Payment by CITY is not a condition precedent to enforcement of this indemnity. In the event of any dispute between CONTRACTOR and CITY, as to whether liability arises from the sole negligence of the CITY or its officers, employees, agents, subcontractors or vendors, CONTRACTOR will be obligated to pay for CITY's defense until such time as a final judgment has been entered adjudicating the CITY as solely negligent. CONTRACTOR will not be entitled in the event of such a determination to any reimbursement of defense costs including but not limited to attorney's fees, expert fees and costs of litigation.

16. NON-LIABILITY OF CITY OFFICERS AND EMPLOYEES

No officer or employee of CITY will be personally liable to CONTRACTOR, in the event of any default or breach by the CITY or for any amount that may become due to CONTRACTOR.

17. INSURANCE

A. CONTRACTOR and its subcontractors must maintain at its sole expense the following insurance, which will be full coverage not subject to self insurance provisions:

1. Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
 - a. Primary Bodily Injury with limits of at least \$500,000 per person, \$500,000 per occurrence; and
 - b. Primary Property Damage of at least \$250,000 per occurrence; or
 - c. Combined single limits of \$1,000,000 per occurrence.
2. General Liability including coverage for premises, products and completed operations, independent contractors/vendors, personal injury and contractual obligations with combined single limits of coverage of at least \$1,000,000 per occurrence.

3. Workers' Compensation with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.
- B. The insurance provided by CONTRACTOR will be primary and non-contributory.
- C. CITY ("City of Torrance"), the Redevelopment Agency of the City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
- D. CONTRACTOR must provide certificates of insurance and/or endorsements indicating appropriate coverage, to the City Clerk of the City of Torrance before the commencement of work.
- E. Each insurance policy required by this Paragraph must contain a provision that no termination, cancellation or change of coverage can be made without thirty days notice to CITY.

18. SUFFICIENCY OF INSURERS

Insurance required by this Agreement will be satisfactory only if issued by companies admitted to do business in California, rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category Class VII or better, unless these requirements are waived by the Risk Manager of CITY ("Risk Manager") due to unique circumstances. In the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to CITY, the CONTRACTOR agrees that the minimum limits of any insurance policies or performance bonds required by this Agreement may be changed accordingly upon receipt of written notice from the Risk Manager; provided that CONTRACTOR will have the right to appeal a determination of increased coverage by the Risk Manager to the City Council of CITY within 10 days of receipt of notice from the Risk Manager.

19. CONFLICT OF INTEREST

- A. No officer or employee of the CITY may have any financial interest, direct or indirect, in this Agreement, nor may any officer or employee participate in any decision relating to the Agreement that effects the officer or employee's financial interest or the financial interest of any corporation, partnership or association in which the officer or employee is, directly or indirectly interested, in violation of any law, rule or regulation.
- B. No person may offer, give, or agree to give any officer or employee or former officer or employee, nor may any officer or employee solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program

requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any way pertaining to any program requirement, contract or subcontract, or to any solicitation or proposal.

20. NOTICE

- A. All notices, requests, demands, or other communications under this Agreement will be in writing. Notice will be sufficiently given for all purposes as follows:
1. Personal delivery. When personally delivered to the recipient: notice is effective on delivery.
 2. First Class mail. When mailed first class to the last address of the recipient known to the party giving notice: notice is effective three mail delivery days after deposit in an United States Postal Service office or mailbox.
 3. Certified mail. When mailed certified mail, return receipt requested: notice is effective on receipt, if delivery is confirmed by a return receipt.
 4. Overnight delivery. When delivered by an overnight delivery service, charges prepaid or charged to the sender's account: notice is effective on delivery, if delivery is confirmed by the delivery service.
 5. Facsimile transmission. When sent by fax to the last fax number of the recipient known to the party giving notice: notice is effective on receipt. Any notice given by fax will be deemed received on the next business day if it is received after 5:00 p.m. (recipient's time) or on a non-business day.

6. Addresses for purpose of giving notice are as follows:

CONTRACTOR Contractor's Name and Address

Fax: Insert Fax Number

CITY:

City Clerk
City of Torrance
3031 Torrance Boulevard
Torrance, CA 90509-2970
Fax: (310) 618-2931

- B. Any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified, will be deemed effective as of the first date the notice was refused, unclaimed or deemed undeliverable by the postal authorities, messenger or overnight delivery service.
- C. Either party may change its address or fax number by giving the other party notice of the change in any manner permitted by this Agreement.
21. **PROHIBITION AGAINST ASSIGNMENT AND SUBCONTRACTING**
This Agreement and all exhibits are binding on the heirs, successors, and assigns of the parties. The Agreement may not be assigned or subcontracted by either CITY or CONTRACTOR without the prior written consent of the other.
22. **INTEGRATION; AMENDMENT**
This Agreement represents the entire understanding of CITY and CONTRACTOR as to those matters contained in it. No prior oral or written understanding will be of any force or effect with respect to the terms of this Agreement. The Agreement may not be modified or altered except in writing signed by both parties.
23. **INTERPRETATION**
The terms of this Agreement should be construed in accordance with the meaning of the language used and should not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction that might otherwise apply.

24. **SEVERABILITY**

If any part of this Agreement is found to be in conflict with applicable laws, that part will be inoperative, null and void insofar as it is in conflict with any applicable laws, but the remainder of the Agreement will remain in full force and effect.

25. **TIME OF ESSENCE**

Time is of the essence in the performance of this Agreement.

26. **GOVERNING LAW: JURISDICTION**

This Agreement will be administered and interpreted under the laws of the State of California. Jurisdiction of any litigation arising from the Agreement will be in Los Angeles County, California.

27. **COMPLIANCE WITH STATUTES AND REGULATIONS**

CONTRACTOR will be knowledgeable of and will comply with all applicable federal, state, county and city statutes, rules, regulations, ordinances and orders.

28. **WAIVER OF BREACH**

No delay or omission in the exercise of any right or remedy by a nondefaulting party on any default will impair the right or remedy or be construed as a waiver. A party's consent or approval of any act by the other party requiring the party's consent or approval will not be deemed to waive or render unnecessary the other party's consent to or approval of any subsequent act. Any waiver by either party of any default must be in writing and will not be a waiver of any other default concerning the same or any other provision of this Agreement.

29. **ATTORNEY'S FEES**

Except as provided for in Paragraph 15, in any dispute, litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this Agreement (whether in contract, tort or both) or seeks a declaration of any rights or obligations under this Agreement, the prevailing party will be awarded reasonable attorney's fees, together with any costs and expenses, to resolve the dispute and to enforce any judgment.

30. **EXHIBITS**

All exhibits identified in this Agreement are incorporated into the Agreement by this reference.

31. **CONTRACTOR'S AUTHORITY TO EXECUTE**

The persons executing this Agreement on behalf of the CONTRACTOR warrant that (i) the CONTRACTOR is duly organized and existing; (ii) they are duly authorized to execute this Agreement on behalf of the CONTRACTOR; (iii) by so executing this Agreement, the CONTRACTOR is formally bound to the provisions of this Agreement; and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which the CONTRACTOR is bound.

CITY OF TORRANCE
a Municipal Corporation

Firm Name
Type of Entity

Frank Scotto, Mayor

By: _____
Signer
Title

ATTEST:

Sue Herbers
City Clerk

APPROVED AS TO FORM:
JOHN L. FELLOWS III
City Attorney

By: _____

Attachments: Exhibit A Scope of Services
 Exhibit B Compensation Schedule

Revised: 10/29/2008

EXHIBIT A
SCOPE OF SERVICES
[To be attached]

EXHIBIT B
COMPENSATION SCHEDULE
[To be attached]



April 27, 2010

City Clerk
City of Torrance
3031 Torrance Boulevard
Torrance, CA 90503

Via Federal Express
Priority Overnight
Airbill No. 7934-8822-9412

Re: Utility Billing Services

Global Water Management, LLC ("Global Water") is pleased to submit this response to the City of Torrance Customer Service Request for Proposals. We are excited about the opportunity to submit a proposal on this important project for the City of Torrance.

We have assembled an experienced and available team to provide the necessary management and information technology services for this project. Jason Bethke, PE (Arizona), with over 15 years of experience, will lead the team.

Global Water has deployed this technology platform within its own utilities and has demonstrated incredible labor efficiencies, reductions in power and chemical consumption greater than 20 percent, and increased the level of customer service.

We believe the Global Water team demonstrates the necessary expertise and is uniquely qualified to provide the requested services. We appreciate the opportunity to submit our qualifications and proposal for your consideration.

Sincerely,

GLOBAL WATER MANAGEMENT, LLC

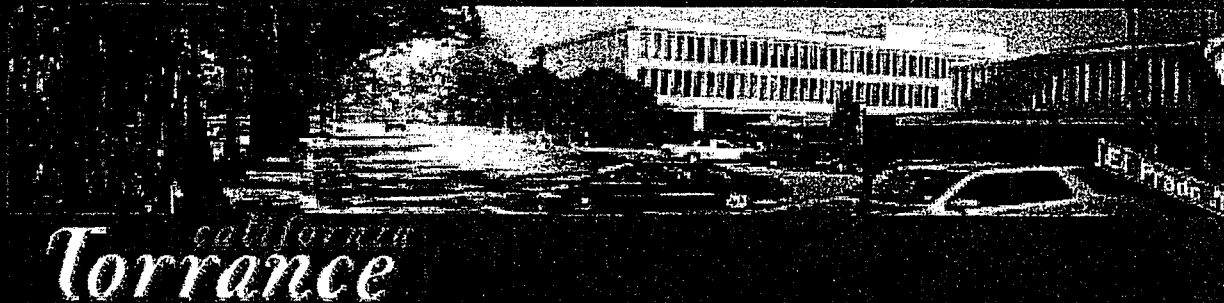
A handwritten signature in cursive script that reads 'Jason Bethke'.

Jason Bethke, PE (Arizona)
Vice President

April 27, 2010

Proposal for the City of Torrance

Utility Billing Services



Prepared For:

City Clerk, City of Torrance

3031 Torrance Blvd.
Torrance, CA 90503

Submitted By:

Global Water Management, LLC
21410 N. 19th Ave #201
Phoenix, AZ. 85027
623-580-9600
www.gwresources.com



A. INTRODUCTION

Global Water

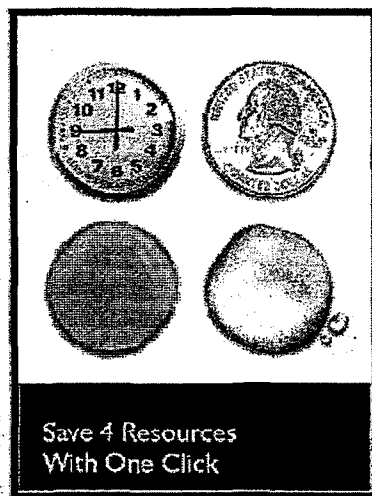
Global Water owns and operates 14 regulated, private water and wastewater utilities within the State of Arizona and is one of the world's leading innovators in water management. Through multi-million dollar investments in people, processes, and technology, Global Water utilities are now some of the greenest, most efficient operations anywhere. As current economic conditions demand that utility providers do more with less, Global Water is utilizing proven, integrated cost-saving platforms.

Global Water brings a set of core beliefs to the operation of every utility, including:

- Water is a scarce commodity that must be conserved and actively managed;
- Recycled water is a renewable resource that must be used to the benefit of our customers and the environment;
- Compliance with all regulatory structures is paramount and is in the public interest, and;
- It requires a partnership with our customers that generate water conserving behavioral changes.

These beliefs have been integrated into the deployment of over \$300 million in capital projects to support our utilities in the past five years, and the development of a sector leading information technology (IT) platform. This IT platform optimizes utility operations by finding and managing efficiencies, increasing the level of customer service, and eliminating unnecessary expenses. Instant access to information provides management the ability to make timely decisions and drive recurring costs (power, consumables, and labor) of utility operations to their theoretical minimums. This same commitment to efficiencies has been applied to our customer service and billing platforms.

These customer service, billing, and IT platforms were constructed to be infinitely scalable. As such, we can now offer access to these systems and significant savings to the utilities we serve. In the pages that follow, we will demonstrate how our organization can deliver these cost cutting technologies to the City of Torrance without the typical risks associated with them. We hope you will agree Global Water Management is the best choice for your City's future and we look forward to working with you.



1. Describe your company's call center.

Located in one of the safest areas of the United States for call center and data management activities, Phoenix, Arizona is historically free of natural disasters. Our center was originally developed to service the Global Water utilities customers and as a result our team of customer service representatives is trained not only in how to efficiently process a payment, but to assist customers through all the various water related customer calls. This has reduced the volume of calls that have to be elevated to our operations staff. This level of expertise is a benefit that you can only receive from a provider that services its own utilities.

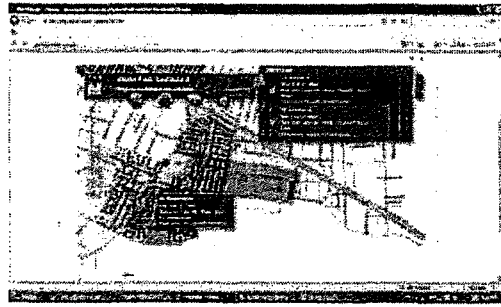
Throughout our proposal we will commonly reference the benefits that we receive from the systems in our existing utilities. For clarification, our offering adds your customers into exactly the same systems we use to operate our 14 utilities. So as we add efficiencies that impact our operations team, you can expect to benefit directly as well.

We also appreciate that other than walk-in customers, the call center is the most expensive way to receive a payment. As we will discuss in other portions of the proposal, our systems are designed to move customers to automated and computer based payment systems.

Our call center is built around the following workflow:

- 1) Generate an accurate, easy to understand water bill that will reduce call volume.
- 2) Customer generates phone call to customer service center.
- 3) Phone call is answered immediately by IVR phone system.
- 4) The IVR system is designed to reduce the number of calls that must be answered live and categorize the calls for optimal processing times. The IVR executes the following:
 - a. Provides general information, directions, hour of operations, etc (specific to Torrance).
 - b. Separates the calls into reconnection of service calls due to non-payment, regular payment calls, and other service calls.
 - c. Each of these call center queues is managed on a continuous basis to achieve the desired service level with priority wait times being given to other service calls, regular payment calls, and finally reconnection of service calls due to non-payment.
 - d. Process payments via the IVR system or report a non-emergency event.
- 5) If the customer chooses not to use the IVR system to make a payment or report an event, the call is answered by our team of customer service representatives.
- 6) Using our state of the art customer information system, the customer request is processed by the representative. Based on the customer's request, a series of service or work orders may be generated by the system.

- 7) If the service order can be processed by the representative, as is the case without any field involvement, the order is processed immediately and available for use.
- 8) If the service or work order requires any field work, the work order appears instantly on the operation dashboard and is assigned to the designated personnel in the field work order management system.
- 9) Upon completion of the work order, the completed information is instantly available for the customer service representative to accept the data into the system, close the work order, and inform the customer.



The call center in Phoenix, Arizona was constructed five years ago using state of the art telecommunication equipment designed to accept 750,000 customer contacts per year. The center is currently operating at just over 100,000 customer contacts per year.

After hours support is critical to the operational readiness of our organization and yours. We employ three key strategies to ensure after hours support is available to our customers and operations teams without burdening our operations team with unnecessary requests. These include the following:

- 1) Our IVR system is running 24 hours a day 7 days a week. This provides for payment and non-emergency events to be received without a live agent answering the phone.
- 2) Customer Service Representative – On-Call Rotation. We have applied our operations On-Call rotation program to our customer service teams. This On-Call rotation with experienced utility customer service representatives greatly reduces the call volume being transferred to the operations teams.
- 3) Emergency Overflow – On occasions on-call customer service representatives can be overwhelmed by higher than normal call volume. In these cases the on-call customer service representatives can activate emergency messaging on the IVR system and overflow calls to a third party service.

As a result of structuring the call center around this nine point workflow, the customer information system tracks all customer information in a service and work order format. This format allows *nearly infinite reporting options, classifications of priority work orders, and actionable information to our utility managers and the City of Torrance.*

This of state of the art technology, dedication of work flow processes, and training of utility customer service representatives creates a customer experience that is unmatched in the industry.

2. Describe your company's Interactive Voice Response (IVR) System.

Global Water believes that most people would prefer to interact with a live agent rather than an IVR system. We also believe the technology must be implemented in the utility sector to improve efficiencies and have widely adopted IVR as an alternative to customer service personnel. The key is to deploy IVR in the areas where it can have the greatest impact and developed it in as user friendly a manner as possible to drive adoption. We have found that IVR is best deployed in the following areas:

- 1) Receiving and processing regular check and credit card payments – Our IVR system allows these calls to be processed 24 hours a day 7 days a week. Customers who desire to call in a payment can receive an excellent customer service experience through this automated system.
- 2) Late notice and collections – Using IVR in this manner can be a shift for utilities, but is a highly effective one. Outbound IVR is a specialty of Global Water, designing campaigns to communicate with customers and drive demand pattern changes. In our late notice and collection campaigns, customers receive a phone call reminding them that their payment is past due with an option to pay now using the IVR system. Then, beginning five days prior to disconnect the IVR system calls customers nightly informing them of the disconnect date and providing them an option to pay now or accept a payment arrangement to continue service. The program reduced our disconnect service orders and moved over 95% of our current receivables into the less than 30 day column.
- 3) Outbound Customer Service – When linked to our asset management application, customers affected by main breaks or other utility issues can be notified automatically by phone using the break trace and customer features.

Of course, customer campaigns can be designed to address a host of other issues.

Although not specifically requested in the request for proposals it is worth discussing the trend toward SMS (Text) messages and email notifications. These can be equally and sometimes more effective than IVR systems. Customers who sign up for email and SMS notifications on the Web customer care portal can receive alerts, information, and bills over these systems - a great tool for conservation management and modifying our customers water usage behavior.

3. Provide your Company's background.

Global Water owns and operates 14 regulated, private water and wastewater utilities within the State of Arizona and is one of the world's leading innovators in water management. Through multi-million dollar investments in people, processes, and technology, Global Water utilities are now some of the greenest, most efficient operations anywhere. As current

economic conditions demand that utility providers do more with less, Global Water is utilizing proven, integrated cost-saving platforms.

Global Water brings a set of core beliefs to the operation of every utility, including:

- Water is a scarce commodity that must be conserved and actively managed;
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These beliefs have been integrated into the deployment of over \$300 million in capital projects to support our utilities in the past five years, and a sector leading information technology (IT) platform. This IT platform optimizes utility operations by finding and managing efficiencies, increasing the level of customer service, and eliminating unnecessary expenses. Instant access to information provides management the ability to make timely decisions and drive down recurring costs (power, consumables, and labor) of utility operations to their theoretical minimums. This same commitment to efficiencies has been applied to our customer service and billing platforms.

These customer service, billing and IT platforms were constructed to be infinitely scalable. As such, we now can offer access to these systems and significant savings to the utilities we are providing services to.

Global Water customers, after receiving their bill, can pay online over their bank's internet bill pay site, via the Web-Portal, ACH auto payment, credit cards, eCheck over the phone or Web-portal, or the integrated voice response system (IVR) via phone to make payments on their account. These services are already being provided monthly to Global Water utility customers and can be provided to the residents of Torrance using the same systems already in daily use.

Global Water currently provides the Town of Buckeye with wastewater billing services for roughly 6,000 accounts per month as part of the water billing to our existing customers. Global Water is currently providing billing, remittance management, customer service, collections and reporting for Red Rock Utilities, a private utility in Tucson, Arizona, meter reading, customer service and billing for the City of Menlo Park, California, and is in the final stages of providing our utility billing platform to the City of Covina, California as Software as a Service. Global Water was also recently selected to deploy and finance the installation of a fixed network meter reading system for their 8,600 accounts.

A list of references and projects are provided below that document Global Water's experience and expertise in providing the requested services for the City of Torrance.

4. Provide proof of financial stability (audited financial statements – past two years).

Global Water is a privately held organization with substantial resources and a balance sheet in excess of \$350 million dollars. We are not comfortable providing audited financials in a document that is part of the public record. We are, of course, capable of documenting our financial stability and do this on a regular basis with our regulators, who must deem the company and its management financially and technically capable of providing utility services.

5. Proposed delivery and installation schedule.

Global's systems were originally designed knowing Global was an aggregator of privately held utility companies. Only recently has the organization begun to offer its industry leading back office and asset management practices to the municipal sector to assist other utilities in gaining from the advances in these management systems.

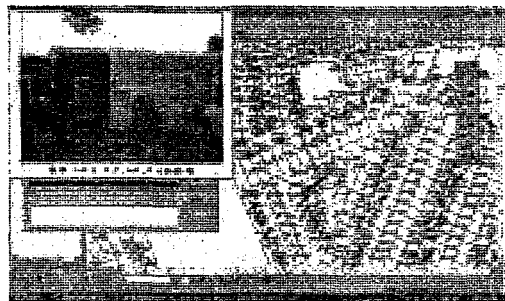
This provides us the ability to quickly deploy these systems into the municipal sector. What we realized early in systems development is that many private water companies didn't have an accurate account of their meter inventory or customer count. Customer information and permitting systems of the past, in many cases, were defeated by users or integrations and customers were lost from the system. As a result, Global's delivery and installation of the new systems minimizes the reliance on the old customer information system.

WE GO RIGHT TO THE SOURCE OF THE DATA to ensure we are billing every customer. In total, this process will consume approximately six months. Three months for the initial 10,000 customer accounts and one month for each additional 10,000 customer accounts with one month of contingency. Our implementation process is outlined below:

Implementation Work Plan

TASK 1 – Meter Audit (Paper)

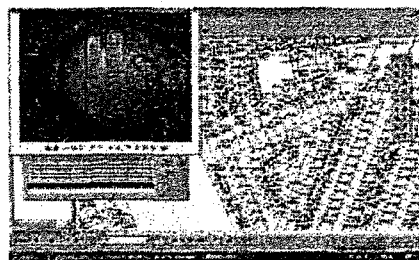
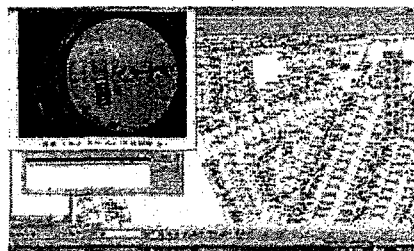
- 1) Obtain County tax records and parcel data.
- 2) Utilize tax records develop a location identifier (Service ID's) in a GIS format.
- 3) Compare existing CIS customer data to tax ID records and generate reporting on matching accounts, and potentially missing meters.



- 4) Procure aerial photograph of the area.
- 5) Synchronize the customer address file, service ID's and aerial photograph. Generate reporting on existing meters expected, missing meters, and development areas and non-water consuming parcels.
- 6) Process all addresses through the US Postal Database to correct any incorrect address information, such as streets recorded as avenues, etc.
- 7) Load data into U1 Panasonic Toughbooks and Global Water developed meter audit GIS application.

TASK 2 – Field Audit

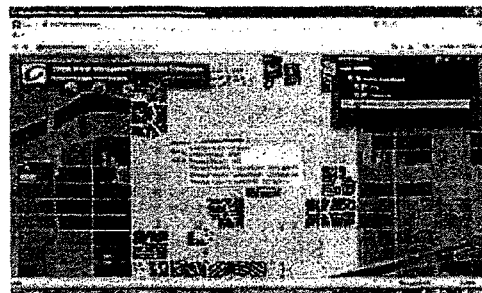
- 1) Visit each paper audit meter location or suspected meter location and photograph each meter location, meter serial number, and home or business.
- 2) Confirm and/or correct information in loaded into the meter audit application.
- 3) Utilizing our GPS enabled cameras, record each GPS location or each photograph providing GPS locations for each meter box and meter.
- 4) Synchronize paper audit to field audit.
- 5) Confirm results with City and batch load customer, location, and meter data into the system. (This is also an excellent time to review meter reading routes for optimization.)



TASK 3 – Customize CIS Application

- 1) Conduct a series of business rule meetings with the City to ensure all billing rules and policies are properly communicated.
- 2) Develop a business rule document, including rates and fees.
- 3) Submit and obtain approval from the City.

- 4) Customize and deploy the management system. (Please note our management system consists of a series of geocentric tools designed to facilitate reporting and the execution of field work. Traditional customer information systems are designed for the call center environment.)



- 5) Train City staff in the use of the Geocentric Management system and reporting. The management system is deployed to the City over the Internet and requires no IT management or equipment from the City, with the exception of an Internet connection and a standard computer.

TASK 4 – System Testing and Online Bill Pay System

- 1) Generate a testing plan for City approval, complete with mock billing run.
- 2) Collect meter readings and process into test environment.
- 3) Generate billing insert to inform customers of the billing system change.
- 4) Present online bill payment and read history data of mock customers to City staff for approval.
- 5) Upon City approval, move the system to the live environment.

6. Will you provide monthly and bi-monthly residential billings for Water, Sewer, and Refuse?

YES. Global Water's Systems have the ability to bill customers on cycles that provide an even workflow for field service personnel and customer service activities. Global Water will be able to provide cycle billing to the City which improves cash flow, customer service and field service operations.

The customer information system currently manages all of Global Water's owned utilities and several for which we provide services similar to ones requested by the City of Torrance in this proposal. Currently, all of our customers and managed customers are billed monthly to enhance remittance management and ensure collection. To the extent the City wishes to bill its customers bi-monthly, we can accommodate this request. We can also provide supplemental meter reading services to move to monthly billing. But if the City is interested in moving to monthly billing we highly recommend our full financed fixed network meter reading system. It provides 720 reads per meter per month without mobilizing a single meter reader or truck.

With full meter replacement these system can be installed for about \$4 dollars per meter per month and provides all the data you need to meet your 20% reduction in water consumption.

Global currently bills water, sewer, and refuse to customers on a monthly basis. Moving to bi-monthly is a simple configuration in the billing system and can easily be reversed when monthly billing is required.

7. Will you provide monthly billing for commercial water and sewer accounts?

YES. Global Water's system will bill your customers within 2 days of receiving the water meter read. We will even provide a schedule of customer billings and inform the City if we do not receive an expected read to bill the customer. This would be provided in the form of an electronic work order requesting a meter read for the account.

8. Provide a sample of your user friendly bill billing.

A sample bill is attached for your review. Please note that we believe as water scarcity becomes more critical that customer participation in these goals requires simplified bills that focus on consumption. As a result, we expect that bills will also need to adjust. Our approach to bill formatting is therefore somewhat different, and we focus on making it easy to modify the bill format and insert communications to the customers.

Our system can add comments to the bills at the direction of the City to inform customers of upcoming events or possible system leaks.

We also generate a complex and complete billing file for our print bill vendors. This allows the vendors to obtain all the information they need directly from the bill print file and eliminates the possibility of calculation errors and simplifies the bill print format changes.

Therefore, we can offer the City a custom bill print format designed to meet the specific needs of the City. These customer bills include City logos and can be designed to eliminate any mention of Global Water Management as the provider of these services.

We do prefer to maintain our Phoenix, Arizona return address to improve customer service levels but can be flexible if this becomes an issue for the City.

9. Will you provide and distribute messages, notifications, and bill inserts?

YES. The bill format we design together will have a distribution message block for use by the City. We can also include notifications for high usage and leakage notifications. We included four billing inserts a year in our pricing. The inserts can be either full 8 ½ by 11 inch or 1/3 inserts. We did not include the cost of printing the inserts but can accommodate this request

as well. We are currently in the process of distributing consumer confidence reports on water quality to many of our customers using this process.

10. Will you customize bills and/or management reports (unit of measure, quantities, and dollars)?

YES. The management platform for reporting generates the following standard reporting. We also have a host of other utility management reporting that is available through many of our other automatic meter reading and asset management offerings. We use this reporting to manage our utilities on a daily basis. If we don't currently have a report and it generates information that is helpful to reduce costs or increase revenue – we will create it free of charge.

Most of our standard reporting is presented in gallons to drive customer awareness. However, utility specific reporting is available in gallons and/or cubic feet. Financial reporting is available in US dollars.

Billing customization was discussed in the early section. We will work together to customize the City of Torrance bill prior to going live.

It is important to note that our reporting infrastructure is built on a Microsoft platform for easy integrations. The reports are also auto-generating and are posted to a Website we host for the City each night. This way any of the standard reporting is available for your use whenever you need it.

11. Will you accommodate multi-tiered billing, including conservation measures and/or changes in the rate structure, including proration of rates?

YES. One of Global Water's founding principles is that water is a scarce resource. One of the core methods of impacting water use is demand side management and pricing signals. So we not only build the systems to accommodate multi-tiered billing, water budgets, prorations of rates, etc. We absolutely understand why these are critical. In a recent rate case we proposed a six tiered rate structure with rebates for conserving water. Since the top tiers of this rate proposal are punitive – it is critical to communicate with the customer on a more frequent basis. AMI to detect leaks, text messages to inform customers that they are entering higher tiers, as well as Web portals to manage their water consumption.

Our regulatory and rate design teams can even help review rate structures and propose modifications that allow water conservation without impacting the need to maintain certain revenue requirements for debt and bond repayments.

We believe in water scarcity management as a tenet of our organization and our systems absolutely support us in this belief. We are offering to let them support you as well.

12. Will you provide discount rate structure for senior citizens/low income and disabled customers?

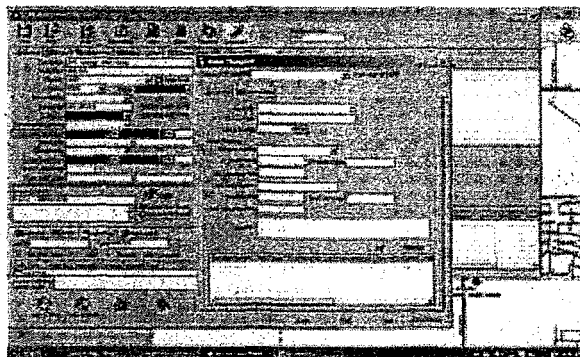
Global customer information systems will accommodate your requirement for a rate structure for senior citizens, low income and disabled customers, and any changes to these rate structures as contemplated by your pending rate study. It will also accommodate payment plan arrangements and manage these agreements to ensure the maximum amount of revenue due the City is collected.

13. Will you provide wire transfer daily cash collections?

YES. Global shall remit by either direct deposit or wire transfer to the City all remittances received by Global for the previous business day. Our remittance management separates all receivables by utility and thereby ensures all funds remain distinct.

14. Will you provide an effective and efficient interface with the billing information system (personnel, computers, and by telephone) as prescribed by the City of Torrance?

YES. It should be noted that customer information systems are designed with the customer service representative in mind. They have never been designed for management or field operations staff. As a result, we do not force our clients to obtain their information or process their work in an application that was not designed for them.



As a result we provide two different interfaces for managers and operators. The first is the dashboard for our utility master data management application. This application sources data from the customer information system and displays the data requested in an easy to use, geospatial and graphical presentment. The second application is our Cityworks work order management system designed for field work. This application allows operations to view customer information data and action work orders. It removes the need to issue paper work orders and once completed in the field the customer service team is instantly aware of the completion.

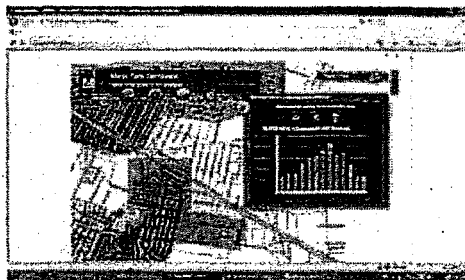
Integration into the financial billing system or other applications is facilitated with file transfers. We will generate a file transfer and upload process into the financial system as part of our deployment. These can be executed daily with the wire transfers.

We also provide a direct line for operational support calls if the City requires information from the CIS system that is not available through the reporting, dashboards, work order management systems, or file transfers.

All file transfers and reporting can be supplied in summary and or detail formats to meet all GASB and audit requirements.

15. Will you provide interface with Neptune Handheld meter reading devices and N Sight (formerly Equinox) compatible for Automated Meter Readings?

YES. Global Water is currently installing its own Neptune R450 fixed network. Once completed, Global Water will be operating three fixed networks along with drive-by systems. This Neptune system is replacing our last owned utility utilizing manual meter reads. Due to the varied nature of our meter reading systems, we have developed integrations to all major meter reading protocols.



It is impossible to generate accurate bills without accurate meter reads. Our integrations to all meter reading system have been properly testing as a result and our robust exception reporting assists with identifying non-accurate bills prior to them reaching a customer.

16. Will you provide payment service to the City of Torrance customers using the methods listed below?

- **E-Bill Paperless Billing**
 - YES, customers can elect to receive an ebill. The bill is presented in our customer portal which provides usage history, transaction history, read history, the opportunity to sign up for various notifications and view or print their bill.
- **Pay by Phone**
 - YES, customers can speak to a customer service representative or utilize the IVR system to make a payment.
- **Pay by Mail**
 - YES, all mail payments are directed to a lock box facility. The payments are opened, scanned and processed into an upload file for the customer information system. Funds are then transferred to the appropriate entity based on utility.
- **Pay by Debit/Credit Card**
 - YES, customers can pay by Debit/Credit cards as well as eCheck which allows them to use their existing checking account. Customers are charged a convenience fee of 2.85% for credit and debit cards.

- **Pay at City of Torrance**
 - Yes, Global will develop a full service center in the City of Torrance that will be staffed during regular business hours.
- **Pay a few others ways**
 - Global also provides for customers to pay using their personal bank's payment site. This requires registration with all major banks to ensure the City of Torrance appears as a billing choice. Global Water has already been approved by the banking system to offer this additional convenience to your customers. We simply will add "City of Torrance – Water" to this existing approval.
 - Global provides customers to sign up for ACH or automatic debit from their checking account. This process is available on-line through our ebilling services.
 - Global also offers a "Pay Now" feature on the customer portal. This feature allows anyone to pay their water bill without gaining access to their. It's great for parents who need to help their kids or kids helping their parents. It is also super convenient if you're on the go and with dashboard access to balances allows any City employee to assist a customer in paying their bill online.

17. Will you provide Internet payment and customer inquiry capabilities?

Global will provide the capability for customers to pay their bills over the Internet in two ways. They will be able to use the Web-portal to look up their own account balances and make payments by credit card and eCheck or they can make a payment over the Internet using their bank's Internet bill payment facilities. Global will have the City of Torrance certified to accept Internet bill payments and have these payments uploaded automatically into our CIS. This form of receiving payments is the fastest growing electronic payment segment.

18. Will you respond and answer customer inquiries within a satisfactory time frame (70% of the answered calls within 60 seconds and must maintain fewer than 7% of dropped calls)?

YES. Global Water can commit to a service level agreement that 70% of all calls are answered by a customer service representative in less than 60 seconds after the customer removes themselves from the IVR system, which answers calls immediately. After reviewing the data and customer patterns we believe we can also sign service level agreements that maintain abandon calls at less than 7 percent. Distribution system events such as line failures or low pressures would be excluded from these measurements.

Global Water has traditionally not maintained this service level as our service level targets were set slightly lower. However, we understand the need to increase service levels for this contract and as our systems were constructed to maintain a service level in excess of these requirements it is simply a manner of hiring and training additional customer service

representatives. Our six month deployment window will allow more than enough time to establish the appropriate staffing levels.

19. Will you route telephone calls to the appropriate City staff?

YES, we will be happy to route phone calls to City of Torrance personnel as required. However, our customer service representatives are trained to handle most water and wastewater related customer calls. We will work to only transfer calls to the City that reach an elevated status.

20. Will you provide the City with access to all account information including recorded time tracking, monitoring device reports etc., with licensing for five concurrent users? (Must include direct, view only, and add notes access by City employees to all functions of customer accounts).

YES. It should be noted that customer information systems are designed with the customer service representative in mind. They have never been designed for management or field operations staff. As a result, we do not force our clients to obtain their information or process their work in an application that was not designed for them. As a result, we provide two different interfaces for managers and operators. The first is the dashboard or utility master data management application. This application sources data from the customer information system and displays the data requested in an easy to use, geospatial and graphical presentment. The second application is our Cityworks work order management system designed for field work. This application allows operations to view customer information data and action work orders. It removes the need to issue paper work orders and once completed in the field the customer service team is instantly aware of the completion.

We will therefore provide the City access to its CIS data for up to five concurrent users; this access will be restricted to direct, view only with the ability to add notes to customer's accounts. A Global CIS specialist will train the appropriate City personnel on the effective and efficient operations of the management software.

21. How will you provide effective and efficient coordination and communication with the City?

We have focused on how our technology can be leveraged to increase revenue and reduce operational costs while increasing service level throughout our response. With the increase in data, it is sometimes difficult to transition this data into usable actionable information to reduce costs. Our mission is to help your City achieve the same benefits from our technology as we have - and communication is the key.

Global Water will personally review monthly reporting on customer service levels, exception reporting, water consumption and a host of reporting elements monthly with your management team. This is also an opportunity to express any items that could be working better or any performance concerns. We will trend customer service levels, water consumption, and other key metrics and review and discuss any emerging concerns.

Of course, our project manager will be easy to reach via cell phone or email, but these monthly reporting meetings are critical to achieving the best possible results from our services.

Reviewing the technology, our systems are easily accessible over air cards in laptops or simply over the Internet. We will leverage our investment in CIS, GIS, CMMS and reporting to provide you with the same levels of service we demand for our own utilities. The City of Torrance personnel will have the ability to receive work orders electronically in the field via air cards on Tough Book computers for all field customer service related work orders. This will allow the City's field service personnel to remain in the field executing work orders electronically and being able to close and report on the work orders in real time. An example of this would be if Global receives a payment from a customer that has been disconnected for non-payment. The work order will be generated in the CIS software and electronically sent to the City's field customer service personnel instantaneously to prevent the disconnect.

22. How do you provide a satisfactory response time to the customer?

Global provides satisfactory response time to customers through the careful deployment of real-time information systems, by eliminating paper based work orders and moving to electronic work order. Field service personnel can spend more time in the field executing the work and less time managing the paperwork. A good example of this is when the work order generates a financial transaction like a meter re-read or service connection. Once completed, the electronic work order will trigger the CIS to create a bill for this service and include this service on the next bill. This highly automated, integrated system eliminates redundant data entry and the errors that are introduced through these processes.

For email communication, each email is provided a tracking number to ensure a timely response. These and all open work orders are reviewed daily to ensure all customers are contacted with the status of their open request.

23. Describe how you will provide interface and electronic transfer of information between billing, meter reading, or customer service to the City.

Global Water is always pleased to work with Cities that understand in order to truly reduce the costs of operations and understand revenue, you must combine sources of data to gain new actionable information. The integration of data is incredibly powerful and we credit our integrated utility management platform with reducing labor by 40% in some utilities, and power and chemical costs by 20% a year for two years running in others.

At the most technical level, we will utilize database triggers, log shipping and file transfers to create and manage the interfaces to any other City databases.

Because our systems are deployed to the City over the Internet, much of the complexity is removed as the City is working directly in our applications and integrations are not required.

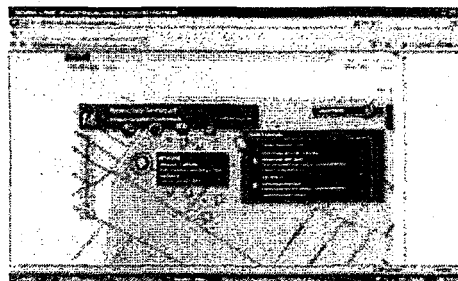
There are two critical areas of integration on this project that require discussion. The first is the meter reading file. The City will maintain the manual meter reading process. Typically, the integration process into the billing system starts with the billing system. A read file is exported from the billing system into a handheld unit for read population. The reads are populated into the handheld and a file is transferred back to the billing system. This traditional approach works well and we are fully capable of this work process. This process requires the ability to export the read file to the handheld in a format acceptable to the handheld.

We are also capable of uploading meter numbers, reads and trouble reports directly into the billing system. This allows simple integration into whatever process by which the City decides to collect reads in the future. If this process is utilized, we first take the reads into our GIS read management application and process all exceptions, issue work orders, and perfect the reads to simply the billing process.

The second critical integration point is integration into the financial system. The simplest form of this is a daily file transfer into the financial system. Our systems export and upload the file to the City and the City downloads and imports the file into the financial system. This process can of course be automated but we recommend daily updates to the financial system.

24. How will you provide electronic submission (via IVR, email, etc.) of your customer service requests to City using either City approved form or in a format that can be interfaced?

Global can email service orders directly from the CIS application to the City if requested. However, our integrations to the management platform provide for work order assignments directly to the required personnel. In this case, email is actually slower than this real time integration. We have proposed five concurrent accesses to this management platform to receive and



action all workorders. The dashboard is available to all City employees and provides a real time view of service and work orders occurring.

If the City has another platform it wishes to use to execute workorders we are happy to discuss integrating the application.

25. Will you designate personnel as a service coordinator/liaison to the City?

Global Water's project manager will personally review monthly reporting on customer service levels, exception reporting, water consumption, and a host of reporting elements with your management team on a monthly basis. This is also an opportunity to express any items that could be working better or any performance concerns. We will trend customer service levels, water consumption, and other key metrics and review and discuss any emerging concerns.

Of course our project manager will be easy to reach via cell phone or email, but these monthly reporting meetings are critical to achieving the best possible results from our services.

26. Will you incorporate the City of Torrance policy for non-payment shut off notices?

Global will integrate the City's current policy for non-payment and shut off notices as well as make any future changes to these policies and notices if and when staff makes recommendations to the Mayor and Council to change these policies.

27. How will you provide a 24-Hour call center with the ability to notify the appropriate City departments in case of emergency?

Global Water will staff the 24 hour call center as detailed in Question 1 above and repeated below. This approach will ensure that someone is available to contact the City by moving down a contact tree in case of emergency.

"After-hours support is critical to the operational readiness of our organization and yours. We employ three key strategies to ensure after hours support is available to our customers and operations teams without burdening our operations team with unnecessary requests. These include the following:

- 1) The IVR system is running 24-hours a day 7 days a week. This provides for payment and non-emergency events to be received without a live agent answering the phone.
- 2) Customer Service Representative – On-Call Rotation. We have applied our operations On-Call Rotation program to our customer service teams. This On-Call Rotation with

experienced utility customer service representatives greatly reduces the call volume being transferred to the operations teams.

- 3) Emergency Overflow – On occasion, the on-call customer service representatives can be overwhelmed by higher than normal call volume. In these cases, the on-call customer service representatives can activate emergency messaging on the IVR system and overflow calls to a third party service.

As a result of structuring the call center around the nine point workflow, the customer information system tracks all customer information in a service and work order format. This format allows *nearly infinite reporting options, classifications of priority work orders, actionable information to our utility managers and the City of Torrance.*"

28. Will you provide a policy for appeal hearings, adjustments, and/or resolutions?

We will work together during implementation to develop these policies. We have guidelines to start from but we are executing a service for the City. These policies therefore must be approved by the City for our implementation. Global currently has policy and procedures in place for these activities inside our own utility operations which can be shared openly with the City. As adjustments have financial impacts, these policies and procedures will be agreed upon in advance and communicated to the customer service personnel from Global in order to provide uniform service delivery to the residents of the City and fair and equitable means to provide appeals, adjustments and bill related resolutions.

29. Will you provide electronic customer payment policy?

Global will provide a policy around the receipt of electronic payments

30. How will you provide a full service office located in the City of Torrance for customer payments?

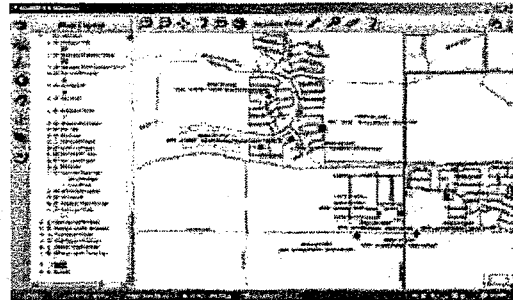
Global has explored several options to provide a local presence for customers of the City in a cost effective manner. Global has investigated the following options in order of likely cost effectiveness:

1. Install a kiosk for payments in City Hall as well as a cash drawer and personnel to assist customers with walk-in bill paying service, establishment of new customer accounts, closing existing accounts, transferring service, handling customer inquiries and complaints, and offering customers assistance regarding City water utility operations and customer service. This would be Global staff resident in the City offices or could be City personnel trained by Global and paid by Global to provide these services.

2. Establishment of a relationship with an existing City of Torrance business like a local bank or credit union or other utility provider in the City to perform these functions on behalf of Global and trained by Global.
3. Establishment of a small customer service office in the City of Torrance to provide these services to the residents of the City.

31. How will you receive payments 24 hours a day, seven days per week?

Once customers receive their bills, either by email or regular mail, they will be able to access their accounts through a Website. This Website can be linked to the City of Torrance's Website, if desired. Customers will have the ability to perform the following functions through this Web portal into the billing system. This system will be available 24 hours per day seven days per week, other than scheduled maintenance windows that will be communicated to the customers similar to when banks perform maintenance on their Internet bill payment sites.



- Review their current bill
- Review payment history
- Review their monthly usage and compare it with previous 24 months of usage
- Compare their water usage with other homes in their neighborhood (without knowing specific addresses)
- Compare their water usage with the average for the City
- Set up automatic payment plans utilizing ACH or credit cards
- Pay their bill by e-check, which is an electronic method for the customer to pay using their checking account online
- Customers will have access to make payments over the IVR 24 hours per day seven days per week

32. Will you provide customer service hours of operation at a minimum, from 7:30am to 5:30pm Monday through Friday, Pacific Standard Time?

Global will provide customer service during these hours of operation and will adjust its staff to accommodate the shift in time zones that occurs for half the year.

33. What are your customer service hours of operation?

See answer above to Question 32.

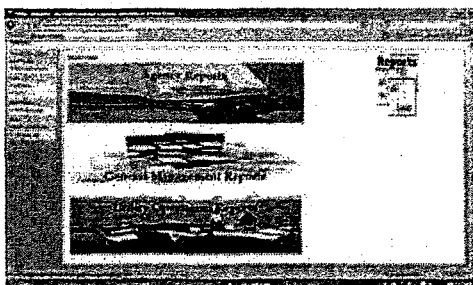
34. Do you have or will you have an answering service for non-operating hours that will notify the appropriate City staff?

Yes. See answer above to Question 27.

35. Will you incorporate the City's payment plan policy for delinquent and or slow moving accounts Incorporate City policies with the company's existing policies?

Global will accommodate payment plans for delinquent and slow paying accounts based upon the policies in place at the City.

36. Will you provide monthly and on demand reports to the City that are "Windows" based and compatible with the City's current version of Microsoft software, and have an interface link to the City's New World financial system?



Global will provide a Microsoft SharePoint site for the electronic distribution of all reports required by the City and for the management of the distribution of these reports. Many of the reports can be automatically sent to the required recipient as designed by the City. Global will provide the necessary interface to provide the New World Financial system

with general ledger transactions and make available any reports required for accounting and audit purposes.

37. Provide sample of reports as requested in the RFP – Detailed collection and financial reports by geographical areas, by account, by service type, largest users, aging reports, delinquencies, etc.

We have provided a selection of reporting from the customer information system in the appendix for your review. These are the standard reports generated from the system. Reporting is continually being automated for instant delivery and available on line in dashboard views for the City. Our ad hoc reporting tools are generate from Microsoft Report Designer and are also available online for the City's use.

Our reporting tools are integrated to GIS data – so they are geographic in nature. All reporting can be executed by location.

38. Provide sample of reports as requested in this RFP – Customer service related reports which reflect the number of customer inquiries; type of customer inquiries; inquiries by location; response time to inquiries, and actions taken to complete inquiry

A select sampling of reports is provided in addition to the standard reporting document which details each of the available reports. These reports are run at the designated frequency up to daily as indicated by the City.

The reports are automatically posted to the City of Torrance SharePoint site by security level, of which we currently provide three. A user logs into the site, selects the report they are looking for and can either download the report in a formatted PDF document or download the form in Excel format for additional processing.

If a new report is required this will be coordinated with the project manager. Depending on the request, these new reports can be completed in a manner of hours to a manner of weeks depending on the complexity of the request.

39. Describe and show samples of your customer complaint tracking system.

We have provided a selection of reporting from the customer information system in the appendix for your review. These are the standard reports generated from the system. Reporting is continually being automated for instant delivery and available on line in dashboard views for the City. Our ad hoc reporting tools are generate from Microsoft Report Designer and are also available on line for the City's use.

Customer complaint tracking is executed in the CIS system through work and service orders. These work orders are available to staff via Cityworks for action and available to management in the dashboard for real time tracking of customer complaints and all other forms of work orders.

40. Describe how payments will be credited to the City.

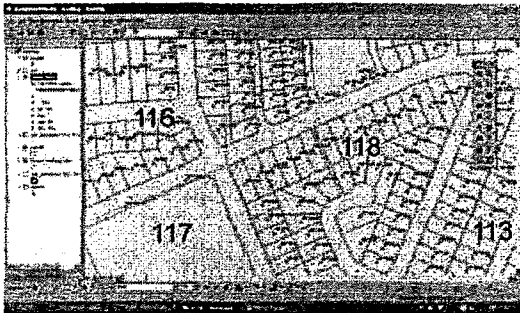
Payment will be credited to the City daily via wire transfer or direct deposit into the City's account established for this contract or one designated by the City.

41. Describe the production and coordination of trouble reports (out of range, meter or facility damage)

Global will coordinate with the City of Torrance meter readers to set a standard process for capturing trouble messaging throughout the routes. During the transition, crucial trouble messages that the meter readers should collect will include, but are not limited to: cannot locate meter, meter lid missing, serial number incorrect and incorrect number of dials. During and after the transition, meters that are not able to be read will need to be tagged with the appropriate reason – landscaping, car parked on top of the meter box, flooding, in locked fence, are a few examples.

Trouble reports and skipped reports will be reviewed daily and the appropriate work orders will be created and directed to staff who are able to resolve the issue prior to the bills being mailed. When the work is complete, and all data is collected, the CIS system will be updated.

42. Describe how you handle the coordination of information into the system (new meters, route changes, customer address changes, water quality, etc.)

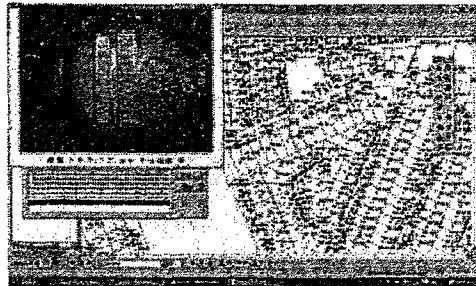


Global Water's systems for customer service are based on work flows as we have discussed. However, these work flows act at a most basic level either on a customer, a meter location, or the combination of a customer and meter location. The combination of a customer and meter location is the account and represents what is billed each month or bi-monthly. This

combination is created by the system and, therefore, if we manage the customer and the location data correctly we can ensure an accurate bill.

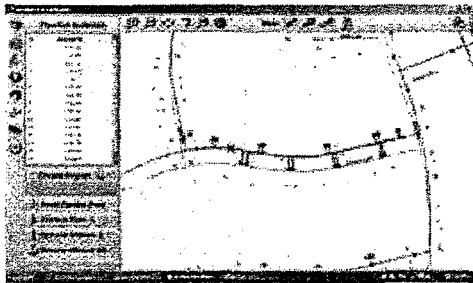
Customer data is managed by the customer service representatives. This would include establishing a new customer, recording a new mailing address, noting customer history, etc. At no time does the customer service representative manage the location information. On a quarterly basis all customer mailing addresses are checked against the US Postal Service database for any change of address information. This helps protect the customer information.

This question appears to be focused primarily on location information. This includes meter number, size, account codes, meter type, location, etc. These



assets are managed by the asset management team and loaded into the CIS system only after being checked in our GIS system. As a result, a stop meter service order generated by our customer service team will always stop in our asset management team to verify the work was completed, all fields are present, and then the new meter number is loaded into the CIS system.

This team also manages the read routes, new meter installations on previous vacant property, and even manages the most important asset, the meter read.



Meter reads are fed into the asset management teams read management application daily. The application verifies the read based on previous consumption, meter number reported and other exception reports. This ensures that the billing system obtains ready to bill reads. Work orders and rereads are generated in the work order management application by this team and if estimates are required this team uses the statistical tools in GIS to estimate the read.

The City's conduit into this team is first through our project manager. However, depending on the frequency of changes and the work orders generated, a secondary conduit into asset management team member assigned to Torrance will be established to your meter readers' supervisor. This is extremely helpful when routes need to be updated quickly or frequently.

43. Provide a sample of reports as requested in the RFP – Management reports (customer, usage, classification, billings), including staff training on how to run/create their own reports

We have provided a selection of reporting from the customer information system in the appendix for your review. These are the standard reports generated from the system. Reporting is continually automated for instant delivery and available on line in dashboard views for the City. Our ad hoc reporting tools are generate from Microsoft Report Designer and are also available on line for the City's use.

44. How will you provide notice and supporting documentation of any regulatory changes affecting either City interests?

Global can provide bill inserts and notification on the Web portal for customer service as well as email notifications to customers who have provided an email for their account.

45. Provide sample of reports as requested in the RFP – Customer service reports on how many meters were read, reread, high bill inquiries/investigation, services turn on/off, late notifications and non-payment turn-offs.

We have provided a selection of reporting from the customer information system in the appendix for your review. These are the standard reports generated from the system. Reporting is continually being automated for instant delivery and available on line in dashboard views for the City. Our ad hoc reporting tools are generate from Microsoft Report Designer and are also available on line for the City's use.

46. Describe your approach to sending the City daily cash collections.

Remittances collected via the various methods such as electronic lock-box, credit and debit cards, eCheck and cash will be deposited into a designed Wells Fargo Bank account where it can be reconciled to the CIS and source documentation. After reconciliation to CIS, the funds will be wired to a bank and account designated by the City or swept daily into an account established by the City at Wells Fargo Bank. Global uses Wells Fargo Bank's treasury services and has established automated business processes around these treasury services and would prefer to use these integrations to support efficient and cost effective service delivery for the City of Torrance.

47. Describe your policy and procedures on reconciling cash received for the City of Torrance.

Global Water's policies and procedures ensure that cash received from the City of Torrance customers is deposited directly into the City of Torrance lock-box and reconciled to the customer information system. Wells Fargo generates a payment processing file from the remittance management process. This file is uploaded daily into the customer information system and a journal entry is booked into our financial system and depending on client preference a wire transfer is initiated to the City of Torrance account of choice.

If the question is driven more at cash received in our local office, our cash collection policy loads the transaction into the customer information system and a receipt is generated for the cash paying customer. The cash register is then balanced each day with receipts for this location. The cash is then deposited daily – the process for deposit will vary based on volume of cash received.

48. Describe your policy and procedures for separating the City of Torrance monies from that of any other agencies that the proposer is now collecting for or may collect for in the future.

These monies are not co-mingled and therefore separation is not required. The City of Torrance will have a dedicated lock box and these funds will be reconciled to the customer information system billing records. If it is the desire of the City, this lock box can be held in the City's name and cash can be swept from the account at the City's conveyance.

49. How will you maintain un-collectable accounts at no more than 0.2% of total monthly revenues?

Un-collectable accounts will vary with the economy and economic status of the customers. Global's goal is to eliminate un-collectable accounts and our systems are designed to achieve this goal. Neither the City nor Global has the ability to "write the check" for delinquent customers who leave their homes without paying their bill. As a result, we must use defined processes to limit the consumption of the service without payment and protect our interest in the form of deposits. We doubt any provider will guarantee the un-collectable accounts, so the City must rely on experience to ensure all debts are collected.

Global Water operates a utility about one-half the size of Torrance, California and had its vacancy rate balloon to 13% in late 2008. With vacancy rates still above 9 percent, our management system maintains uncollectable accounts (over 120 days) to less than 0.15%. In our regions less impacted by rise in foreclosures, these accounts are less than 0.01% a mere \$18.60. In summary, we have one person in our West Valley Region who skipped town owing us \$18.60 and a school district in our Maricopa Casa Grande Region that is a slow paying customer. We anticipate that this will be collected; however it remains in our 120 days and greater account receivable aging report.

Hopefully, the fact that we can communicate to you exactly who and how much is subject to uncollectable accounts today within our 42,500 connections illustrates well that our reporting is state of the art. However, it is the policies surrounding disconnects and deposits that will determine your uncollectable revenue.

Our management team will make recommendations on these policies designed to drive uncollectable revenues as low as possible.

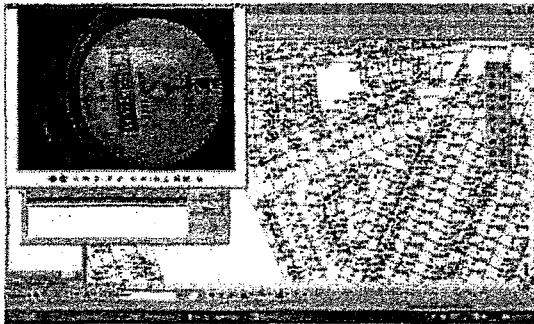
50. Describe in detail your company's policy on handling aged receivables.

After exhausting all management activities related to disconnection and deposits, some aged receivables will remain. These receivables are turned over to a collection agency to recover all possible revenue. The collections company can either add their collection fee to the receivable,

if the City allows, or deduct their fee from the collected amount. Each account will be reviewed with the City in our monthly review meetings prior to sending an account to collections.

B. EXPERIENCE

Global Water is a private regulated utility owner and operator that also own its centralized utility management company. Since its formation over five years ago, the company has provided utility management services to over 45,000 service connections. Global Water has managed the capital improvement plans, regulatory compliance, rate cases and all meter reading, utility billing, and remittance management for its fourteen utilities.



Global Water has invested heavily in meter automation and reads the majority of its meters with Fixed Networks or Automated Meter Infrastructure for collecting timely accurate read data. It utilizes its state-of-the-art utility billing system from Advanced Utility Systems to provide bills to its customers via email and print mail. After receiving their bill, customers can pay on-line over their existing Internet bill pay site, use the eCARE Website,

ACH auto payment, or the integrated voice response system (IVR) via phone to make payments on their account. These services are already being provided monthly to Global Water utility customers and can be provided to the residents of the City of Torrance using the same systems already in daily use.

Global Water currently provides the Town of Buckeye with wastewater billing services for roughly 6,000 accounts per month as part of water billing to our existing customers. It has also assumed billing, remittance management, customer service, collections and reporting for Red Rock Utilities, a private utility in Tucson, Arizona.

A list of references and projects are provided below that document Global Water's experience and expertise in providing the requested services for the City of Torrance.

Global Water Management Utility Support Services

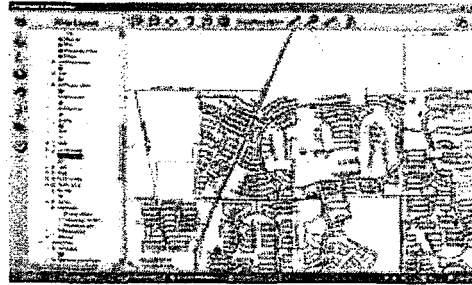
Valencia Water Company Aclara-Hexagram Fixed Network System

Project Contact Information

Ron Fleming
General Manager
201 East Coronado Street
Buckeye, AZ 85326
623.580.9600 x 146

Global Water managed a 4,600 meter replacement program for Valencia Water Company (VWC), deploying approximately \$1.2 million in capital.

The project consisted of replacing 3,400 existing Sensus meters endpoints with the Aclara AMI-fixed network solution and replacing 1,200 meters and meter boxes that had deteriorated over time. During the deployment, the project team consistently verified each meter transmission unit (MTU) to be reading and communicating to the digital collection units (DCU), this is done by utilizing the standard missing wake-up and missing programmer reports that are generated daily within the STAR dashboard. This was crucial in the deployment because it ensures no meters get lost in the conversion, it ensures each component is working properly prior to moving on to new routes, it minimizes the owners involvement with regards to gathering manual reads on uncollected meters, and also eliminates a backlog of cleanup work that would need to be rectified prior to project completion.



Aclara performed a propagation study to determine the best locations for each of the DCUs, which was determined to be 7 for the 12-square mile service area, serving approximately 5,483 meters as of May 2009. These solar powered DCUs are located at the top of water tanks that range in height from 12 to 16 feet high and there have been no problems with transmitting the data to these DCUs. With the Aclara low frequency endpoints the home density does not impact the ability for the meter data to be transmitted to the DCU, which takes reads every hour.

Ron Fleming with Valencia Water Company has stated the following improvements since the deployment of the Hexagram AMR system:

“There are four major benefits that we have seen as a direct result of implementing the Hexagram AMR system:

- We have greatly reduced operational expenses directly related to meter readings and customer account inquiries. We were able to reduce staffing of this department from 4 field customer service representative to 1 position. This saves on both labor and fleet costs.
- Customer service levels have increased immensely as each customer service representative can perform a detailed individual analysis of water consumption right in the office. Utility personnel have access to accurate, timely usage data and can provide greater assistance on all customer inquiries, without the necessity of a field visit.

- With the hourly reads, leak detection has become much easier. If the interval read never reaches 0 within a 24 hour period, then we are almost certain they have a low flow leak and we are able to notify the customer. Equally, we can easily identify high flow conditions that also indicate a potential leak.
- The AMR/AMI system is truly a green practice; it reduces carbon emissions by substantially reducing the miles driven to manage field customer service activities, it supports water conservation through leak detection, and has been integrated with other applications to create a paperless billing environment. "

Santa Cruz Water Company Itron Fixed Network System

Project Contact Information

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General Manager

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520.233.2910

Jason Thuneman

CAPEX Project Manager

22590 North Powers Parkway

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520.233.2910

Global Water deployed 15,272 Itron Automatic Meter Reading (AMR) end points for Santa Cruz Water Company (SCWC).

Itron guarantees to deliver 99% efficiency on the reads and currently is experiencing:

- 1 day misreads, 98.9%
- 3 day misreads, 99.04%
- 5 day misreads, 99.12%

SCWC is currently striving to achieve 100% reads and is constantly working to improve the read rate.

In order to determine the number of data collection units (DCUs) Global Water performed a propagation study at all SCWC sites (well sites, lift stations, water campuses, etc.) to determine the best locations for the DCUs. The collectors were also placed on secured sites in order to minimize vandalism concerns. Global Water determined that 10 DCUs would maximize reading efficiencies and ensure redundancy. Global Water owns a mobile tower van that can be driven to a location where the telescoping tower is deployed to ensure all reads are obtained in the event of an emergency.

After determining the best locations for the DCUs, Global Water obtained the necessary permits and hired contractors to complete the construction. Ultimately, Global Water completed the IT integration and brought the live read into the billing system through SCWC's radio network system.

Water Utility of Greater Buckeye Itron Drive-by Network System

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Buckeye, AZ 85326
623.580.9600

The Water Utility of Greater Buckeye consists of 4 public water systems and currently serves 657 meters. Global Water was the project manager for the retrofitting of the existing meters and deployment an Itron drive-by data collection system. The Itron drive-by system is in four disconnected service areas.

Water Utility of Greater Tonopah Itron Drive-by Network System

Project Contact Information

Ron Fleming
General Manager
201 East Coronado Street
Buckeye, AZ 85326
623.580.9600

The Water Utility of Greater Tonopah consists of 8 public water systems and currently serves 368 meters. Global Water was the project manager for the retrofitting of the existing meters and deployment of an Itron drive-by data collection system. The Itron drive-by system serves 9 separate water systems.

C. PROJECT TEAM

TEAM EXPERIENCE

As with any successful project, the people executing the project are responsible for the success. The Global team, outlined in the organization chart below, is the most qualified and experienced team for the Project. Our team is born of the utility business and lives its requirements daily, and our partners' experience and definition of project success is aligned with a utility provider's goals.

Team Bios

Global Water Management

Leo Commandeur
Senior Vice President – Business Development and Client Champion



Mr. Commandeur has spent the last year meeting with municipalities and private utilities and discussing their metering and asset management issues. He has personally met with individuals representing over one million active meters. As a result, he has an excellent understanding of the issues facing utilities in these economic conditions. His role on this project is to ensure the goals of the City of Torrance are met at every step and to provide a conduit for early issue identification.

Mr. Commandeur has over 10 years in the water, wastewater and recycled water business and is one of the co-founders of Global Water.

Jason Bethke, PE
Director of Engineering & Construction

As Director of Engineering & Construction, Mr. Bethke is responsible for all aspects of engineering, construction and asset management for Global Water. Over the past five years, Global Water has deployed over 300 million dollars of capital improvement throughout 14 utilities. In conjunction with this capital deployment, Mr. Bethke oversaw the deployment of the geographical information and asset management systems. The disciplined approach to the development of these systems has resulted in a state of the art work order management system, complete with geo-referenced as-builts and infrastructure locations. These systems now link GIS data with customer information system (CIS) data to ensure every meter in Global Water is accounted for and invoiced.

Mr. Bethke has been providing water, wastewater, and recycled water engineering and construction management services in the Southwest for over 14 years. His career in the water industry began as a consulting engineer, designing water and wastewater projects with flow rates as high as 27 MGD. He has also designed over 100,000 linear feet of pipeline and completed large-scale master planning efforts. In 2005, Mr. Bethke spent a year with a small start-up equipment provider, working in research and development for arsenic and fluoride removal systems.

This wide range of industry experience, combined with excellent technical abilities, allows Mr. Bethke to offer a unique approach to design and construction that ensures facilities meet the criteria of low operating costs, ease of maintenance and/or repair, operational simplicity, and efficient use of capital dollars.

John Peckardt
Director of Information Technology

As Director of Information Technology, Mr. Peckardt is responsible for all software, hardware and networking technologies for Global Water. He architected and led the

Global Water implementation of its state of the art computing environment. He integrated leading technologies from vendors like IBM, Cisco, Network Appliance, VMWare, Citrix, Microsoft and many others to create a computing environment that supports the unique needs of each utility in a "Software as a Service" (SaaS) model.

Mr. Peckardt has been providing Information Technology services for various industries for over 20 years. He has a vast experience in hardware and software implementations in both the mid-market and Fortune 500 companies. His experiences in consulting, manufacturing, distribution, retail and utilities provide a broad array of experiences he can draw upon in both implementation and support roles. Mr. Peckardt holds both PMI, PMP, and ITIL certifications. Global Water utilized the ITIL framework to develop documented IT support processes that are reviewed, measured and used to drive continuous improvement.

Tony Taglia
Asset Management Manager

Mr. Taglia is responsible for overseeing the asset management program. Over the past two years, Global Water has deployed an Enterprise GIS integrated with a Computerized Maintenance Management System (CMMS) program and a plant engineering software solution, throughout their 14 utilities. As an integral constituent of these deployments, Mr. Taglia personally managed several projects and designed many components of the systems to facilitate the asset management program for Global Water.

Mr. Taglia has been providing services in the geospatial information technology field for various utilities (water, wastewater, electric, and gas) and municipalities across the nation for over 10 years. He has also designed and implemented procedures for large scale data conversion and data entry projects at multiple electric and gas utilities. This exposure to the broad use of geospatial technologies across various industries enables Mr. Taglia to offer a rich background to design, and to implement and deploy systems that enable organizations to make more informed decisions, increase their efficiency, and realize a quick return on investment.

RFP No. 2010- 05	Request for Proposal (RFP) to Provide Utility Billing Services for the City of Torrance
SECTION III PROPOSAL SUBMITTAL	

FAILURE TO COMPLETE ALL ITEMS IN THIS SECTION MAY INVALIDATE BID.

In accordance with your "Invitation to Bid", the following bid proposal is submitted to the City of Torrance.

Proposal Submitted By:

Global Water Management, LLC
Name of Company

21410 N. 19th Avenue, Suite 201
Address

Phoenix, Arizona 85027
City/State/Zip Code

(623) 580-9600 / (623) 580-9659
Telephone Number/Fax Number

Jason Bethke, Vice President
Printed Name/Title

Jason Bethke 4/27/2010
Signature Date

Contact for Additional Information:

Please provide the name of the individual at your company to contact for any additional information

Jason Bethke
Name

Vice President
Title

(623) 580-9600 ext. 167 / (623) 580-9659
Telephone Number/Fax Number

Form of Business Organization: Please indicate the following (check one);

Corporation _____ Partnership _____ Sole Proprietorship _____ Other: LLC

Business History:

How long have you been in business under your current name and form of business organization?

7 Years

If less than three (3) years and your company was in business under a different name, what was that name?

Addenda Received:

Please indicate addenda information you have received regarding this bid:

Addendum No. _____ Date Received: _____
Addendum No. _____ Date Received: _____
Addendum No. _____ Date Received: _____
Addendum No. _____ Date Received: _____

X No Addenda received regarding this bid.

Payment Terms: The City of Torrance Payment terms are Net 30. The City does not make pre-payments, or pay upon receipt.

Do you offer any discounted invoice terms? No _____

Renewal Option:

Please state, if requested by the City, if your company would agree to a renewal of this contract with price, terms and conditions unchanged.

Yes X we would agree to add January 3, 2015 to January 2, 2018

Yes X we would agree to add January 3, 2018 to January 2, 2021

No _____ we would not be interested in renewing this contract.

Sub Contractors:

Do you plan to sub-contract any portion of this contract? Yes X No _____

If yes, Please provide that company information below:

Sub Contractor's Information:

If subcontractor(s) is to be used in the performance of this project, please provide the following information:

Company Name: Source Corp

Contact: Jane Kerry

Address: 3826 E. Watkins, Phoenix, AZ 85034

Telephone: (602) 438-8450

Company Name: _____

Contact: _____

Address: _____

Telephone: _____

Company Name: _____

Contact: _____

Address: _____

Telephone: _____

References:

Please supply the names of companies/agencies for which you recently supplied comparable services as requested in this RFP.

<u>Ruben Nino</u>	<u>333 Burgess Drive, Menlo Park, CA</u>	<u>(650) 330-6780</u>
Name of Company/Agency	Address	Person to contact/Telephone No.

<u>City of Covina</u>	<u>534 North Barrance Ave, Covina, CA</u>	<u>(626) 384-5217</u>
Name of Company/Agency	Address	Person to contact/Telephone No.

<u>Valencia Water Company (GW)</u>	<u>21410 N. 19th Ave, Phoenix, AZ</u>	<u>Ron Fleming (623) 580-9600</u>
Name of Company/Agency	Address	Person to contact/Telephone No.

<u>Santa Cruz Water Company (GW)</u>	<u>21410 N. 19th Ave, Phoenix, AZ</u>	<u>Ed Borromeo (623) 580-9600</u>
Name of Company/Agency	Address	Person to contact/Telephone No.

_____	_____	_____
Name of Company/Agency	Address	Person to contact/Telephone No.

ATTACHMENT 1

STATE OF CALIFORNIA

PROPOSER'S AFFIDAVIT

COUNTY OF LOS ANGELES

Jason Bethke being first duly sworn, deposes and says:

1. That he/she is the Vice President of Global Water Management, LLC
 (Title of Office) (Name of Company)

Hereinafter called "Proposer", who has submitted to the City of Torrance a proposal for

RFP No. 2010-05 Request for Proposal to Provide Utility Billing Services for the City of Torrance
 (Title of RFP)

2. That the proposal is genuine; that all statements of fact in the proposal are true;
3. That the proposal was not made in the interest or behalf of any person, partnership, company, association, organization or corporation not named or disclosed;
4. That the Proposer did not, directly or indirectly, induce solicit or agree with anyone else to submit a false or sham proposal, to refrain from proposing, or to withdraw his proposal, to raise or fix the proposal price of the Proposer or of anyone else, or to raise or fix any overhead, profit or cost element of the Proposer's price or the price of anyone else; and did not attempt to induce action prejudicial to the interest of the City of Torrance, or of any other Proposer, or anyone else interested in the proposed contract;
5. That the Proposer has not in any other manner sought by collusion to secure for itself an advantage over the other Proposer or to induce action prejudicial to the interests of the City of Torrance; or of any other Proposer or of anyone else interested in the proposed contract;
6. That the Proposer has not accepted any proposal from any subcontractor or materialman through any proposal depository, the bylaws, rules or regulations of which prohibit or prevent the Proposer from considering any proposal from any subcontractor or material man, which is not processed through that proposal depository, or which prevent any subcontractor or materialman from proposing to any contractor who does not use the facilities of or accept proposals from or through such proposal depository;
7. That the Proposer did not, directly or indirectly, submit the Proposer's proposal price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, proposal depository, or to any member or agent thereof, or to any individual or group of individuals, except to the City of Torrance, or to any person or persons who have a partnership or other financial interest with said Proposer in its business.
8. That the Proposer has not been debarred from participation in any State or Federal works project.

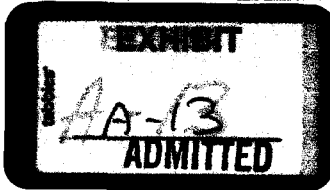
Dated this 27th day of April, 2010.

Jason Bethke
 (Proposer Signature)

Vice President
 (Title)

RFP- Submittal Requirement Acknowledgement (continued)		
Proposer must complete each item in the Proposer's Comments Column by answering the question in the space provided or by indicating the item is answered on an additional sheet and referencing that page number.		
Requirement	Proposer's Comments Column	Additional Sheet Reference Page #
Describe your approach to sending the City daily cash collections		
Describe your policy and procedures on reconciling cash received for the City of Torrance		
Describe your policy and procedures for separating the City of Torrance monies from that of any and other agencies that the proposer is now collecting for or may collect for in the future		
How will you maintain un-collectable accounts at no more than 0.2% of total monthly revenues?		
Describe in detail your company's policy on handling aged receivables.		

RFP Submittal - Price Proposal	
Monthly Customer Service Contract	\$ 38,136
Monthly cost of operating a local payment center in Torrance	\$ 11,320
Estimated Monthly Postage	\$ 6,100
Costs of implementation (One-time cost for start-up conversion)	\$ 197,500



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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE, Chairman
BOB STUMP
SANDRA D. KENNEDY
PAUL NEWMAN
BRENDA BURNS

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER – PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA.

DOCKET NO. SW-03575A-12-_____

Direct Testimony

of

Paul Walker

July 9, 2012

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1 **I. Introduction.**

2 **Q. Please state your name.**

3 A. My name is Paul Walker.

4
5 **Q. By whom are you employed and what is your position?**

6 A. I am the founder and owner of Insight Consulting, LLC.

7
8 **Q. Please describe your background and qualifications.**

9 A. I hold an MBA from Thunderbird, The Garvin School of International Management, and a
10 Bachelor's in Business Management from the University of Phoenix; additionally I have
11 completed numerous military schools and courses. In 2001, I joined the Commission as
12 Policy Advisor to Commissioner Marc Spitzer. Prior to that I had served on Governor
13 Hull's negotiating team working with Arizona's Indian Tribes to develop Indian gaming
14 compacts, and as Policy & Communications Manager at the Arizona Department of
15 Gaming.

16
17 In my current work, I provide regulatory consulting, advice and analysis, as well as
18 testimony drafting, editing, and preparation services to utility clients. In addition, I
19 provide regulatory analysis to utility investors, and chair Arizonans for Responsible Water
20 Policy, a trade group and PAC representing water utilities in Arizona. I have given
21 numerous presentations at regulatory workshops and industry meetings; and I am also a
22 member of the Arizona Power Plant and Line Siting Committee.

23
24 **II. ICFAs.**

25 **Q. Please provide an overview of the ICFA issue.**

26 A. In the 2009 rate case we argued that ICFA funds should be used to cover the carrying costs
27 of regional infrastructure and the acquisition premiums associated with the purchase of

1 troubled systems. We also argued that any CIAC imputation of ICFA funds should be
2 offset by the tax liability that generated by the ICFA funds.

3
4 We still believe these are valid arguments and that the public interest would be served by
5 adopting them. However, the acquisition premiums alone are sufficient to justify a near
6 complete reversal of the CIAC imputations made in the last rate case. I will focus here on
7 the acquisition premiums and Matt Rowell will also explain how the tax asset created by
8 the Commission's decision in the last case should be included in rate base (absent a
9 reversal of the CIAC imputation itself.)

10
11 **Q. How was this issue dealt with in the Global Utilities' last rate case?**

12 A. In the Global Utilities' most recent rate order, the Commission decided to impute the ICFA
13 funds as CIAC. However, the Commission expressed reservations about this decision and
14 established a workshop process to further investigate the use of ICFA funds, including
15 whether they "could be utilized to finance the acquisition of troubled water companies,
16 subject to Commission approval." (Decision No. 71878 at pages 30-31).

17
18 In the time since the last rate case, the Commission also directed Staff to engage an
19 independent auditor to review specified ICFA issues.

20
21 **Q. Has the independent audit been completed?**

22 A. No, it has not. But regardless of the audit report's findings and Staff's recommendations
23 regarding the acquisition cost issue, Global's utilities are under-earning and a rate case is
24 necessary.

25
26 **Q. Why isn't Global waiting for the audit to file this rate case?**

27 A. Despite the best intentions of the parties involved, who initially believed that such an audit

1 could be completed in 2011 or early 2012, today it remains unclear as to when the audit
2 will be completed and thus, it is impossible to predict when a staff report on the audit
3 could be issued. Again, regardless of the audit's findings and the outcome of Staff's
4 review, Global's utilities are currently under-earning.

5
6 **Q. Will Global's analysis of its rate base change after the audit is released?**

7 A. I believe that Staff, Global, and others will each assess the audit's findings and how it
8 could affect the rate bases of Global's utilities. At that time, I would encourage the parties
9 to meet and discuss their perspectives on the audit, to see if the parties can reach consensus
10 on what is, ultimately, a major policy choice: should the Commission countenance using
11 developer-provided funds to offset acquisition premiums and thus, incent consolidation of
12 Arizona's fragmented water industry?

13
14 **Q. Were there comments made during the Commission's consideration of the ICFA**
15 **issue that lead you to believe that the Commission intended to review and perhaps**
16 **change its position on the ICFA for acquisition issue?**

17 A. Yes. In explaining to the Commissioners how the Mayes Amendment creating the
18 Workshop Process would work, Utilities Division Director Steve Olea told the
19 Commissioners that the Workshop process would provide Global with a specific process
20 under which the CIAC imputation could be reversed.¹ This case is therefore not akin to a
21 Section 40-252 review or a request to re-litigate a "lost issue", but rather the next logical
22 step in the Commission's careful consideration of a new approach to solving Arizona's
23 consolidation challenge.

24
25
26
27

¹ Open Meeting Tr. at 278-79.

1 **Q. What was the basis of the Commission's ICFA ruling in Global's last rate case?**

2 A. In the Global Utilities' most recent rate order, the Commission stated that "[a]llowing
3 developer contributed funds to remain in rate base would require captive ratepayers to pay
4 Applicants a return on developer-provided ICFA funds, which would violate fundamental
5 ratemaking principles...."² However, the Commission also established a workshop
6 process to further investigate the use of ICFA funds, including whether they "could be
7 utilized to finance the acquisition of troubled water companies, subject to Commission
8 approval."³

9
10 **Q. Please comment on the Commission's ruling.**

11 A. I think the key phrase is "remain in rate base." The Commission clearly assumed that
12 ICFA funds had been used to purchase assets included in rate base. Our key objective in
13 this case, as it was in the Workshop process, and currently is in the independent audit, is to
14 demonstrate how the ICFA funds were actually used. If ICFA funds were not invested in
15 rate base, then there is no reason to deduct those ICFA funds from rate base. Such a
16 deduction would be a clear "double counting" that must be avoided under traditional
17 ratemaking principles.

18
19 To be more specific, the key issue concerns ICFA funds used to purchase severely troubled
20 utility companies – the 387 Districts and the West Maricopa Combine ("WMC") utilities.
21 When these utilities were purchased by Global, they each had significant operational
22 problems. Upon purchase, WMC had little or no rate base, and therefore almost all of
23 WMC's purchase price is an "acquisition premium", that is, the amount paid in excess of
24 the rate base. For the Global's purchase of the 387 Districts, the acquisition premium was
25 approximately \$2.7 million.

26
27 ² Decision No. 71878 at page 30, lines 18-20.

³ Decision No. 71898 at pages 30-31.

1 When ICFA funds pay for an acquisition premium, those funds are not invested in rate
2 base, they are given to the former owner of the utility company. Thus, when ICFA funds
3 pay for an acquisition premium, there are no developer funds that could "remain in rate
4 base" (as stated in the last rate order), because those funds never went into rate base in the
5 first place.

6
7 **Q. Did customers benefit from those acquisitions?**

8 **A.** Unquestionably, they did. In this case, Ron Fleming will testify regarding the operational
9 problems and Global's significant efforts and costs to resolve those operational problems –
10 which immediately benefitted customers. Secondly, I will provide information regarding
11 the views of the Arizona Department of Water Resources, the Arizona Department of
12 Environmental Quality, the Arizona Corporation Commission, and the City of Maricopa
13 regarding the public interest of the acquisitions – and the benefits the public has attained
14 and will continue to attain as a result of those acquisitions.

15
16 **III. ICFAs and acquisitions.**

17 **Q. Can you provide a simple example of how treating ICFAs as CIAC instead of as an
18 offset to acquisition premiums harms the buyer?**

19 **A.** Suppose there is a poorly-run utility, "Bad Utility, Inc." that has no rate base. Global
20 receives \$1 million in ICFA funds from a developer, and uses the money to buy Bad
21 Utility, Inc. Under the most recent rate order, the \$1 million would be deducted from rate
22 base, even though it was not invested in rate base:

	Before	After
Bad Utility Inc., rate base:	\$0	Negative \$1 million

23
24
25
26 **Q. Is this example similar to what happened in Global's last rate case?**

27 **A.** Yes, except the numbers are much higher. I believe that the audit report and Global's own

1 analysis will show that Global incurred significant acquisition premiums and we will
2 demonstrate that the customers have benefitted from Global's ownership of the former 387
3 Districts and West Maricopa Combine utilities.

4
5 **Q. What options does the Commission have in this case to reverse this serious impact?**

6 A. Global is presenting two options to the Commission. The first option is simply that any
7 ICFA funds that were used to fund an acquisition premium should have no net impact to
8 rate base. In other words, the purchase of a utility should neither increase – nor decrease –
9 the utility's rate base.

10
11 The second option is that the Commission could authorize an "acquisition adjustment" to
12 recognize the public policy benefits of Global's acquisition of the West Maricopa Combine
13 and 387 utilities. The acquisition adjustment would increase rate base, thus offsetting the
14 imputation of ICFA funds against the rate base.

15
16 **Q. Can you provide an example of how that would work?**

17 A. Yes, let's use the "Bad Utility, Inc." example above: Global receives \$1 million in ICFA
18 funds from a developer, and uses the money to buy Bad Utility, Inc.

19
20 Under the first option, the \$1 million neither increase nor decreases the rate base of Bad
21 Utility, Inc. Thus, ratepayers do not pay a return on developer-provided funds.

22
23 **Option One – No Change to Rate Base**

	Before	After
Bad Utility Inc., rate base:	\$0	\$0

24
25
26
27 The second option is an acquisition adjustment. The rate base is decreased by \$1 million

1 (as a CIAC imputation for the developer-supplied funds), but then is increased by \$1
2 million to recognize the public policy benefits of the purchase, i.e., the Acquisition
3 Adjustment to reflect the acquisition premium – the market price above the book or rate
4 base value of the acquired company.

5
6 **Option Two – Acquisition Adjustment**

7 **Bad Utility Inc., rate base: Before:** \$0
8 **Changes:** Minus \$1 million (CIAC);
9 Plus \$1 million (acquisition adjustment)

10 **Bad Utility Inc., rate base: After:** \$0

11
12 **Q. Which option is Global pursuing?**

13 **A.** Global believes the first option – no net change to rate base – is the best option for dealing
14 with use of ICFA funds to buy a utility. But if that option is rejected, Global requests that
15 the Commission authorize an acquisition adjustment to recognize the significant public
16 policy and customer benefits of the acquisitions.

17
18 **Q. Has the City of Maricopa taken a position on this issue?**

19 **A.** Yes. The City of Maricopa (City) supports Option One outlined above. On June 23, 2011,
20 the City approved its Resolution 11-39, which authorized the City to enter into an amended
21 Memorandum of Understanding (MOU) with Global. Section 1 of the MOU provides:

22 1. **Total Water Management.** The Total Water Management (TWM) approach
23 to water conservation utilized by Global has resulted in the successful
24 consolidation of several smaller or troubled utility providers in the Parties
25 common planning areas. The Parties believe that TWM as further explained in
26 Exhibit B, attached hereto, will have a significant impact on the long term
27 sustainability of the City and Global. **Additionally the Parties recognize that
there are substantial costs inherent in the acquisition and consolidation of
smaller or troubled utility providers** and in the preparation and implementation
of long term regional water and wastewater resource plans. As such, the Parties
agree that the use of Infrastructure Coordination and Financing Agreements
("ICFAs"), when certain pathways are followed and in accordance with rules and

1 regulations promulgated by the ACC, is a preferred methodology for the financing
2 of costs related to TWM.

3 (emphasis added). The City then issued its Resolution 11-40, also on June 23, 2011.

4 Resolution 11-40 provides that:

5 NOW THEREFORE, BE IT RESOLVED by the Mayor and City Council of
6 the City of Maricopa, Arizona with deference to the Arizona Corporation
7 Commission, which has regulatory authority over the ultimate rate making
8 treatment of ICFA's the City generally supports the use of ICFAs, when
9 certain pathways are followed, as one of the methods available to Global
10 Water and other utilities and developers expanding regional utility
11 infrastructure within the City of Maricopa conditioned on the ICFAs
12 following certain pathways:

13 ...
14 c. Costs associated with the purchase of undercapitalized utilities
15 paid for from ICFA revenue shall not be an allowable cost passed on to the
16 rate-payers. However, ICFA funds used for these purposes shall not be
17 treated or imputed as CIAC.

18 Thus, Resolutions 11-39 and 11-40 show that the City agrees with Option 1, i.e.

19 that when ICFA funds are used to purchase a troubled utility, any ICFA funds

20 used to fund acquisition premiums should not be treated as CIAC.

21 **Q. What were some of the troubled utilities that Global acquired using ICFA funds?**

22 **A.** Global acquired the assets of Sonoran Utility Services, the operator of the 387 Water and
23 Wastewater Domestic Improvement Districts. Global also acquired the West Maricopa
24 Combine (WMC), a holding company of five utilities. Global acquired CP Water
25 Company, a small water company that was owned by developers with no experience in the
26 water business. Lastly, ICFAs allowed Global to assume the duties of interim manager of
27 Hacienda Acres Water Co.

Q. Please describe Sonoran and the 387 districts.

A. Sonoran had contractual rights to operate the 387 Districts, including ownership of the
assets and control over the rates. Even though Sonoran was in nearly all respects the actual
utility provider, it was not subject to Commission jurisdiction. As detailed in Mr.
Fleming's testimony, the 387 Districts were simply not providing service. There were

1 actual customers in homes receiving water that did not meet the Safe Drinking Water Act
2 regulations and without wastewater utility service, a severe and unacceptable situation.
3 Indeed, the Commission agreed that this situation was an emergency after the City notified
4 the Commission that people had no potable water and a sewer system with an inoperative,
5 incomplete wastewater treatment plant.

6
7 **Q. Was the acquisition of the Sonoran / 387 assets in the public interest?**

8 **A.** In Global's purchase of the Sonoran / 387 assets, the following facts were established by
9 ADEQ, the City of Maricopa, ADWR, and the ACC:

10
11 *ACC Decision No. 68498, Finding of Fact No. 37*

12 Sonoran could not deliver an adequate level of service to the customers of the
13 387 Districts. For example, the wastewater treatment plant for the 387
14 District was not completed in time to serve the customers who moved into the
15 area. Moreover, the water from the 387 Districts' wells did not meet state and
16 federal standards. Sonoran's inability to provide adequate service created an
17 emergency.

18
19 *ACC Decision No. 70133, Finding of Fact No. 7*

20 As a result of the emergency situation, the Global Utilities began immediately
21 providing customers in the 387 District with bottled water and on April 14,
22 2005 the Global Utilities interconnected their wastewater and water systems
23 with the 387 Districts in order to continue service to the customers in the
24 extension area.

25
26 *ACC Decision No. 70133, Finding of Fact No. 59*

27 At the request of the City of Maricopa, ADEQ and ADWR, the Global
Utilities stepped in and began providing water and wastewater utility service
to the customers in the 387 Districts. Without the Global Utilities' assistance,
the emergency situation that existed could have become worse.

ACC Decision No. 70133, Finding of Fact No. 62

There is a continuing public need for water and wastewater service to the 387
District extension area. Today, more than 5,000 water and 5,000 wastewater
customers reside in the 387 District extension area.

1 **Q. Please describe West Maricopa Combine.**

2 A. West Maricopa Combine was the owner of five dilapidated, poorly-constructed and
3 poorly-managed utilities. Even worse, these utilities were located in a water-scarce region
4 and a region with significant water quality issues. WMC simply could not meet the needs
5 of developers and was failing its own customers, as is further explained in Mr. Fleming's
6 testimony.

7
8 **Q. Was the acquisition of the West Maricopa Combine in the public interest?**

9 A. In the West Maricopa Combine area, the following facts were established by ADEQ, and
10 ADWR:

11
12 *Letter from ADEQ Director Ben Grumbles to the ACC, November 19, 2009*

13 *Docket No. W-02450A-06-0626 and SW-20422A-06-0566*

14 Regional planning is an absolute requirement to achieve water sustainability
15 in Arizona, especially in water supply challenged areas such as the Lower
16 Hassayampa Sub-Basin. This type of planning allows for utilities and
17 regulators to collaborate on new and innovative ways to improve the use of
18 water, wastewater, and recycled water. Combined with the development of
19 integrated water and wastewater infrastructure, large-scale, regional and long-
term planning will help to ensure that our scarce water resources well into the
future... I believe the most effective way to achieve such goals in our
communities is through regional planning as envisioned in the Belmont
development.

20 *Letter from ADWR Deputy Director Karen Smith to the ACC, November 16, 2009*

21 *Docket No. W-02450A-06-0626 and SW-20422A-06-0566*

22 [T]he Lower Hassayampa Sub-basin, including the Belmont area,... has been
23 home to intense dispute and concern for the Department of Water Resources.
24 In the absence of sustainable water practices the long-term sustainability of
this area is in jeopardy. Hydrologic modeling and the Department's review
25 have demonstrated that there is insufficient groundwater to meet the
anticipated demand of all the proposed developments without integrated
26 water, wastewater and recycled water, long-term regional planning, and a
holistic approach to water supply. There is simply not enough groundwater.
27 The Department has been working tirelessly with area developers and water
providers (including Global Water and the Town of Buckeye) to establish the

1 protocols necessary to achieve sustainability. This has not been an easy task.
2 I fear that the Commission's proposed action will unravel these extensive
3 negotiations, and cause a chain-reaction of conversion of Analyses of Assured
4 Water Supply to Certificates of Assured Water Supply. This will seriously
5 cripple a major future employment corridor for the Phoenix area... Worse, I
6 expect that we would see a rush of small, developer-centric utilities and
7 systems that will not achieve our long-term water sustainability goals.

8 **Q. Please comment on the developers' role in consolidating the West Maricopa Combine**
9 **utilities.**

10 **A.** One element that has remained a point of contention is why developers would give Global
11 money to pay for, or contribute to the payment of, an acquisition – some suggest that the
12 developers didn't know or didn't care what Global did with the money.

13 That point of view explicitly contradicts ADWR's position as stated in Docket No. W-
14 02450A-06-0626 and SW-20422A-06-0566, and it fully ignores ADEQ's stated position in
15 those dockets that Global's regional planning and Total Water Management approach is an
16 "absolute requirement" in this area.

17 **Q. Why did developers help Global pay for the WMC acquisition?**

18 **A.** WMC was built almost entirely with CIAC from developers; the developers who signed
19 the ICFAs were intimately familiar with WMC and its CIAC approach to funding
20 infrastructure. They understood that WMC's existing approach was not viable and could
21 not work for extending service to large new areas.

22 The developers could very simply have signed Main Extension Agreements (MXAs) with
23 WMC and avoided paying millions to Global for an acquisition of WMC. The developers
24 would never have had to enter ICFAs that so specifically require Total Water Management
25 for their new developments. Yet despite those millions of dollars in costs, the developers
26 entered into ICFAs. Why? Because Global Water's Total Water Management approach
27 was necessary for the western portion of Maricopa County – as ADEQ and ADWR stated

1 in their letters to the ACC in November of 2009.

2
3 **Q. Please describe CP Water Company.**

4 A. CP has approximately 13 customers. It has no production well, and relies on a third party
5 for the source of its water. CP was owned by a developer, with little experience or interest
6 in running a water company. Global acquired CP as part of an ICFA agreement with the
7 developer that owned CP. CP has since been folded into Global Water – Santa Cruz Water
8 Company.⁴

9
10 **Q. Please describe American Realty and Mortgage Co. d/b/a Hacienda Acres Water**
11 **Company.**

12 A. Hacienda owns or owned a water system providing service to a small number of customers
13 in Pinal County, Arizona. The Commission awarded Hacienda a Certificate of
14 Convenience and Necessity ("CC&N") in Decision No. 44444 (September 1, 1974).
15 Hacienda's system became dilapidated, and Hacienda operated for many years in violation
16 of federal and state water quality requirements. In Decision No. 69865 (August 23, 2007),
17 the Commission issued an Order to Show Cause against Hacienda alleging numerous
18 violations of Commission rules and other regulatory requirements. That decision also
19 authorized the Commission Staff to appoint an interim manager, and ordered Hacienda to
20 not interfere with the interim manager. The Commission Staff then appointed Global the
21 interim manager of Hacienda by letter agreement between Global and Staff.

22
23 After a hearing, the Commission issued Decision No. 70609 (November 19, 2008). This
24 decision found that Hacienda violated numerous Commission rules and other regulatory
25 requirements and fined Hacienda \$41,000. The decision also continued the authorization
26

27 ⁴ See Decision No. 73146 (May 1, 2012) at page 49, lines 8-9.

1 for the interim manager, revoked Hacienda's CC&N, and made numerous findings of fact,
2 including:

3 20. The evidence is undisputed that Joseph Lee and two men acting as his
4 agents vandalized the water system by damaging the well head by severing the
5 well discharge pipe to the storage tank; damaging the power supply and circuit
6 breaker box by severing the well motor electrical cable and tearing apart the
7 electrical service; damaging the storage tank by cutting a valve and emptying
8 water from the tank; removing the booster pumps and hydropneumatic tanks;
and removing residential service meters and causing damage to service
laterals. This damage left Respondent's customers without a water supply or
water service.⁵

9 In a court proceeding filed by the Commission against Mr. Lee, the Court issued a
10 finding of fact that the Commission's action in appointing an interim manager
11 was appropriate:

12 The Commission has proven that American Realty through Hacienda had a
13 Certificate of Convenience and Necessity to provide water to the
14 neighborhood in question. There is also proof that Hacienda intended to stop
15 service without the approval of the ACC. As a result, the ACC had an
16 obligation to take action such as appointing an interim manager for the utility
17 to ensure continuity of service. In the face of the announcement by Hacienda
that service would stop on the 27th of August, it was appropriate for the
interim manager to take over the facility and for the Commission to prohibit
Mr. Lee, directly or indirectly, from interfering.⁶

18 Global is currently working with the Maricopa Mountain Domestic Water Improvement
19 District to transition the Hacienda customers to service under the District, based on a grant
20 expected from the United States Department of Agriculture.

21
22 **Q. How does Hacienda relate to ICFAs?**

23 **A.** Global entered into an ICFA with a developer owning property near Hacienda. Global
24 included this property in its CC&N extension application in Docket No. 06-0545. The

25 ⁵ Decision No. 70609 at page 11, Finding of Fact No. 20.

26 ⁶ Maricopa County Superior Court, Ruling Minute Entry docketed May 5, 2009 in Case No. CV
27 2007-015778 at Finding of Fact No. 92.

1 ICFA, and pending CC&N extension to this nearby property, were part of Global's
2 thinking in agreeing to incur the significant expense associated with serving as interim
3 manager. As noted in the hearing in that docket, Global hoped to extend its lines near
4 Hacienda to serve the nearby developer under the ICFA.⁷

5
6 **Q. Why should developers bear the costs of buying troubled water companies?**

7 A. James Bonbright wrote in "Principles of Public Utility Rates" at Chapter I, Public Utility
8 Services Verses Socialized Services, ¶¶ 2, 3: "let the beneficiary bear the burden."

9
10 And Professor Bonbright further wrote, in Chapter II, Public Interest or Social-Welfare
11 Criteria of Reasonable Rates, ¶¶ 4 – 6: that in considering the "Public Interest", Utility
12 Commissions have to realize that the term is "almost unique in its extreme vagueness".
13 [Para 1] but that:

- 14
15 1. The public interest addresses the welfare of the community or state,
16 2. Economics focus on allocation of scarce resources,
17 3. Rates must fit into a larger economic environment.

18
19 **Q. Do the acquisitions of the 387 Districts and the West Maricopa Combine Utilities**
20 **meet those three tests?**

21 A. Inarguably they do:

- 22 1. The community and the state faced significant problems in the 387 Districts and the
23 West Maricopa Combine areas, as proven by the ADEQ, ADWR, City of
24 Maricopa, and Arizona Corporation Commission cites above.
25 2. Water is certainly a scarce resource in the Lower Hassayampa Sub-basin (the
26

27 ⁷ December 6, 2007 Hearing Transcript, Docket No. 06-0545, pages 67-73.

1 service area of many of WMC's utilities). Global's Total Water Management was
2 the tool the ADEQ and ADWR indicated was necessary to deal with that significant
3 scarcity. In order to implement that tool, Global had to buy WMC and an
4 acquisition premium had to be paid. The ICFA's allowed the premium to be paid by
5 developers ensuring that customers pay only for the plant necessary to implement
6 Total Water Management. Imputing the ICFA funds as CIAC distorts the true cost
7 of implementing Total Water Management and thus misprices the scarce resource:
8 water.

- 9 3. The ICFA for acquisition costs approach ensures that rates fit into the larger
10 economic environment in two ways: First, they prevent an acquisition from
11 increasing rate base and customer rates. And second, they assign the costs to the
12 beneficiaries, i.e., the developers seeking to develop housing in an area with
13 troubled utility service (the 387 Districts) and in areas with significant water
14 challenges (the West Maricopa Combine). Treating all developer supplied funds as
15 CIAC without consideration of the wider circumstances violates this basic
16 ratemaking principle.

17
18 **IV. Acquisition Adjustment.**

19 **Q. Is there a regulatory principle that supports allowing Global to recognize the costs of**
20 **those acquisitions?**

- 21 A. There is: the acquisition adjustment. Professor Bonbright stated, in Chapter XII, Original
22 Construction Cost Versus Subsequent Acquisition Cost, that "if the transfer... was an
23 essential, or at least a desirable, part of a program of integration, justified in the public
24 interest for the purpose of securing operating efficiencies... a claim by the present
25 company that its purchase of the acquired properties was, in effect, a devotion of capital to
26 the public service, cannot be dismissed as without merit." ¶ 6
27

1 And furthermore, Professor Bonbright wrote in Chapter XIII, The Depreciation or
2 Amortization of Acquisition-Adjustment Costs, that assuming the utilities commission
3 found the acquisition was in the public interest (as earlier outlined) then the cost above
4 book should be amortized – but “an arbitrary rate, such as characterizes accounting
5 practice with respect to some intangibles, may be chosen.” ¶ 3
6

7 **Q. Doesn't Global stand to benefit in the future from the purchase of the WMC?**

8 A. The purchase of the WMC by itself provides no immediate benefit to Global. Only after
9 Global has made significant investments in plant will it be able to benefit from future
10 growth in the WMC areas. The only benefit Global stands to gain from future growth is
11 the return it will earn on future plant investments. This is why utility investors always ask
12 utilities about actual growth rates and forecasts – and why they evaluate capital
13 expenditures, past and planned, to assess whether growth will be a net positive to the
14 utility's value. There is no such thing as a free lunch, and a “growth opportunity” is not
15 viewed by investors as a ‘free lunch’: Growth is both a cost and an opportunity.
16

17 **Q. Does Global support an acquisition adjustment along the lines of that outlined by**
18 **Professor Bonbright?**

19 A. Our position is, and always has been, that the ICFA provides the Commission with a new
20 means of achieving the goals and benefits of consolidation and integration of troubled and
21 challenged water and wastewater utilities. Since any acquisition adjustment would be
22 offset by ICFA funds, there is no need to actually put the acquisition premium into rates.
23

24 There are two ways to achieve that, as outlined above, i.e., leave rate base unchanged, or
25 deduct ICFA funds by calling them CIAC and then approve an acquisition adjustment to
26 offset the CIAC imputation. We prefer that the Commission reverse its CIAC imputation
27 so that the rate bases of our utilities remain as they were prior to the acquisitions.

1 However, if the Commission wants to explicitly deal with the acquisition costs, it should
2 follow the approach of treating the ICFA money as CIAC, and then adding the Acquisition
3 Adjustment back to rate base – the effect would be to “zero out” any change to rate base,
4 again leaving the rate bases of our utilities intact. (This second approach would leave a
5 significant deferred tax asset in the rate bases of the Global utilities as discussed in Matt
6 Rowell’s testimony.)

7
8 In the end, the Commission should put the costs where they belong – on the developers
9 who benefitted from the consolidation and the subsequent improvement to their ability to
10 develop the 387 and WMC areas.

11
12 **V. Financial and rate impacts of ICFA decisions.**

13 **Q. What was the financial impact of the Commission’s decision to impute ICFA fees as**
14 **CIAC?**

15 **A.** The impacts were severe – the CIAC imputation caused an \$85 million net loss for Global
16 in 2010. The balance sheet and income statement impacts were summarized in the
17 presentation of Global’s Controller, Brett Higginbotham, to the water workshop as shown
18 below:

<u>Balance Sheet</u>	<u>2009</u>	<u>2010</u>
Assets		
Goodwill	\$39.1 Million	\$13.1 Million
Liabilities		
Deferred Revenue	\$23.4 Million	\$0
CIAC – Net	\$1.1 Million	\$63.4 Million
 <u>Income Statement</u>		
Revenues		

1	ICFA Revenue	\$12.9 Million	\$0
2	Expenses		
3	Goodwill impairment	\$0	\$24.0 Million
4	Regulatory Provision	\$0	\$55.2 Million
5	Net Loss	\$(4.6 Million)	\$(85.0 Million)

6

7 **Q. What is the impact on the Global Utilities rate bases of reversing the CIAC**
8 **imputation ordered in the last rate case?**

9 A. Reversing the CIAC imputation as proposed here would result in an increase in the rate
10 base of Palo Verde of \$10,846,549, Santa Cruz's rate base would increase by \$6,070,139,
11 and WUGT's rate base would increase by \$4,046,521. These adjustments are shown in the
12 Rate Schedules at Rate Base Adjustments B-2.2a and B-2.2b.

13

14 **Q. Does the above account for the full amount of the CIAC imputation from the last rate**
15 **case?**

16 A. No. Additional CIAC was imputed to Palo Verde's and Santa Cruz's "Southwest Plant"
17 which is not in service. Since this plant is not in service the de-imputation of that CIAC
18 will not affect the rate bases in this rate case. See rate base adjustments B-2.2a and B-2.2b.

19

20 **Q. Are there other aspects of the ICFA CIAC imputation the Commission should be**
21 **aware of?**

22 A. Yes, as explained in Mr. Rowell's testimony, the CIAC imputation has created significant
23 deferred tax assets in the affected Global utilities that should be recognized in rate base if
24 the CIAC imputation is not reversed. If these tax assets are included in rate base, they
25 would actually off-set much of the rate impact of the CIAC imputation. Conversely,
26 reversing the CIAC imputation would also eliminate these deferred tax assets. Thus,
27 reversing the CIAC imputation would not have as large of a rate impact as many might

1 assume.

2
3 **VI. Treatment of ICFAs going forward.**

4 **Q. So far you have focused on the past ICFA funds received. What about ICFA funds**
5 **received going forward?**

6 A. In response to concerns raised by Staff in the last rate case, Global established a separate,
7 segregated account for ICFA funds. This should simplify accounting for these funds in the
8 future.

9
10 **Q. How should funds received in the account be treated?**

11 A. Because the funds are in a special, segregated account, they should be treated similar to
12 hook-up fees, which are also kept in separate accounts. The Commission has recently
13 made significant policy decisions clarifying the proper accounting for hook-up fees. In the
14 recent Bella Vista rate case, the Commission stated that hook-up fees should be treated as
15 CIAC, and "are appropriately deducted from rate base as non-investor supplied capital",
16 but "we think the deductions should not occur until such amounts have been expended for
17 plant."⁸ The ACC came to the same conclusion in the recent Litchfield Park Service
18 Company and Johnson Utilities rate cases.⁹

19
20 Therefore, we propose that funds received in the separate ICFA account be recorded as
21 CIAC upon receipt. However, the CIAC should not be deducted from rate base until the
22 funds are removed from the account.

23
24 **Q. What about situations where funds from the ICFA account are clearly spent on**
25 **something that is not utility plant?**

26 ⁸ Decision No. 77251, Page 47, lines 9-12.

27 ⁹ Decision Nos. 72682 and 72579.

1 A. I suggest that the Commission find that in that situation, Global may request an accounting
2 order for any specific transactions where the use of the ICFA funds should not reduce rate
3 base. For example, using ICFA funds to pay a future acquisition premium, for the reasons
4 discussed above. These cases could be decided on a case-by-case basis, and again the
5 default would be that any funds from the account spent on anything would be treated as a
6 deduction from rate base, unless the Commission approves a different treatment for a
7 specific transaction.
8

9 **VII. Distribution System Improvement Charge ("DSIC") and Collection System**
10 **Improvement Charge ("CSIC").**

11 **Q. Is Global proposing a DSIC and a CSIC?**

12 A. Yes. In this filing, Global Water proposes a Distribution System Improvement Charge
13 (DSIC) for Willow Valley, Santa Cruz, Valencia Town and Greater Buckeye Divisions,
14 and Greater Tonopah, and a Collection System Improvement Charge (CSIC) for Palo
15 Verde. The most significant need is in Willow Valley, a certain area in Valencia known as
16 "Old Valencia", and a few of Global's older public water systems in Greater Buckeye and
17 Greater Tonopah. I will focus on the Willow Valley situation specifically in support of our
18 proposal. Global recognizes that combining a DSIC with a significant rate increase, such as
19 Willow faces, creates additional challenges for the Commission – but in this instance the
20 need for the DSIC is proven by the significant rate increases Willow customers face in this
21 case, and in the future.
22

23 **Q. Why is a DSIC so important in Willow Valley? Can you provide background for**
24 **that statement?**

25 A. Willow Valley Water Company was one of the WMC systems. Mr. Fleming's testimony
26 describes in detail the numerous problems Global discovered with WMC.
27

1 **Q. Has Global considered using Staff's Sustainable Water Improvement Plan (SWIP), as**
2 **proposed in the recent Arizona Water Company rate case?**

3 A. We have considered it, and would like to state that we believe the SWIP approach strikes
4 us as an interesting and potentially useful "first step" as the Commission explores the
5 whole issue of DSICs and infrastructure replacement programs as a means on conserving
6 water, reducing rate case frequency and complexity, improving water and wastewater
7 service, and smoothing out rate increases to avoid the "rate shock" the Commission and
8 customers confronted when the real estate collapse created a tidal wave of rate cases.
9 However, the issues in Willow Valley and some of the other WMC systems are too severe
10 to be remedied by SWIP. The SWIP program may be beneficial "preventative medicine"
11 to keep a healthy system in good repair; but some of the WMC systems need emergency
12 surgery.

13
14 **Q. Are there other concerns with Staff's SWIP mechanism?**

15 A. Yes. The ten year period for cost recovery directly conflicts with the Commission's
16 frequent admonition that companies need to file more frequent rate cases. The use of a
17 deferral account that merely allows companies to request recovery of invested capital into
18 used and useful infrastructure does not decrease regulatory risk – in fact it arguably
19 increases it because we would have an explicit Commission policy that states that capital
20 invested in used and useful infrastructure under a Commission-developed "Sustainable
21 Water Improvement Plan" is not necessarily recoverable.

22
23 Investors evaluate regulatory risk by comparing the regulatory treatment in a jurisdiction in
24 two ways: First, by comparing the jurisdiction with other jurisdictions; and secondly by
25 comparing the jurisdiction's consistency in and of itself. In both cases, the SWIP would
26 disappoint and confuse investors. It is not as significant as a DSIC – it has narrower scope
27 of assets, a very long recovery period, and no certainty on recovery; and it is far different

1 treatment than that the Commission provides to electric utilities in Arizona which have
2 annual adjusters for all manner of plant investments -- from transmission to renewable
3 generation to distribution lines and energy efficient infrastructure.

4
5 **Q. Why is a DSIC needed in for Santa Cruz, and why is a CSIC needed for Palo Verde?**

6 A. Actually, the DSIC & CSIC would be more of a preventative measure for Santa Cruz and
7 Palo Verde, in contrast to the troubled former WMC systems (Willow Valley, and the
8 older systems in Valencia, Greater Buckeye and Greater Tonopah). In other words, in
9 these systems we know some of the pipelines must be replaced and rebuilt; in Santa Cruz
10 and Palo Verde, the DSIC (or CSIC) is appropriate because DSICs (or CSICs) can be
11 emplaced and utilized on an as-needed basis. It makes sense to begin the use of DSICs (or
12 CSIC) in areas that cannot be fixed without them, and in areas where there is no massive
13 need because in those areas the DSIC (or CSIC) will only result in minor annual increases.
14 In both the "worst case" and "best case" scenarios we outline here, the Commission should
15 enact DSICs and begin evaluating their efficacy.

16
17 Moreover, it would make little sense to have a DSIC for some Global areas, and a SWIP
18 for others. That would only increase customer confusion, as well as increasing the
19 regulatory burden for both Staff and Global having to administer two separate programs.
20 To reflect the more preventative nature of a DSIC for Santa Cruz and a CSIC for Palo
21 Verde, we are proposing a lower cap for Santa Cruz and Palo Verde than for the former
22 WMC systems such as Willow Valley.

23
24 **Q. Can you provide details on the DSIC (or CSIC) you envision?**

25 A. Yes, there are several elements to a DSIC (or CSIC). We need the Commission to make
26 determinations on the following issues:

- 27 1. Defining which infrastructure qualifies for the DSIC (or CSIC);

2. The maximum allowable annual adjustment under the DSIC (or CSIC);
3. The forms required in order to allow the Commission to understand and evaluate the proposed DSIC (or CSIC) adjustment;
4. The accounts and controls the Company needs to emplace and use a DSIC (or CSIC); and
5. The customer outreach and education programs to ensure the DSIC (or CSIC) is well-understood.

Q. What infrastructure should qualify for the DSICs or CSIC Global is proposing in this case?

A. The following NARUC Accounts should qualify for a DSIC:

309 Supply Mains
332 Distribution and Transmission Mains
333 Services
334 Meters

For the CSIC, the following NARUC Accounts should qualify for a CSIC:

360	Collection Sewers - Force
361	Collection Sewers - Gravity
362	Special Collecting Structures
363	Services to Customers
364	Flow Measuring Devices
365	Flow Measuring Installations
382	Outfall Sewer Lines

Q. What should be the maximum allowable annual adjustment under the DSICs (or CSIC) Global is proposing in this case?

A. For the Willow Valley Water Company and the other WMC systems, which is a "worst case" scenario in terms of the amount of infrastructure needing replacement in the near-

1 term; we propose an annual adjustment cap of a seven percent (7%) increase in water bills.
2 For Santa Cruz and Palo Verde we propose an annual adjustment cap of 3 percent (3%).
3

4 **Q. What forms does Global propose to file with the Commission in support of annual**
5 **DSIC (or CSIC) adjustments?**

6 A. The first thing to consider is the difficulty a DSIC approach could create for Commission
7 Staff. The simplest approach for the utility is also the likeliest to be difficult for the
8 Commission Staff – i.e., the utility would prefer to make a filing each year specifying, by
9 account, the replacements for the prior year and the proposed replacements for the next
10 year. But one moment of reflection on that approach results in a realization that within a
11 few years of that type of DSIC policy in Arizona, the Commission's Staff would have to
12 make a Hobson's Choice between spending all its time assessing the DSIC plans, or
13 performing its duties in rate case filings. That is not the appropriate result of any DSIC
14 policy.
15

16 **Q. How can the Commission enact DSICs (or CSICs) without overwhelming its own**
17 **ability to fulfill its mission in rate cases?**

18 A. We propose that each of the Global Utilities should develop a Proposed System
19 Improvement Plan that details the amount of plant in each of the NARUC accounts by the
20 amount in each account (e.g., the number of miles in the account, or the number and types
21 of meters) and the rate base value of each account.
22

23 The Proposed System Improvement Plan shall specify the five- and ten-year replacement
24 plans for each account and provide sufficient data to justify the need for such replacements
25 (e.g., water loss statistics, service life status of the existing infrastructure, frequency and
26 duration of outages resulting from failures of infrastructure in each account.)
27

Every two years, each Global utility shall update its Proposed System Improvement Plans – akin to the Biennial Transmission Plans required of electric utilities – with one major difference: With the Biennial Transmission Plan the transmission company is dealing with growth estimates – here there is no growth aspect and the DSIC is a simpler analysis driven by two metrics: The age of the infrastructure, and the actual outages experienced in each type of infrastructure. The format could be as simple as this:

NARUC ACCOUNT	Total (In Miles)	Replaced in Past 12 Months	To be Replaced in next 12 months	Average Age of plant in Account	SAIDI/SAIFI (show each of past three years)
309 Supply Mains					
332 Distribution and Transmission Mains					
333 Services					
334 Meters					

For the CSIC, the format could be as simple as this:

NARUC ACCOUNT	Total (In Miles)	Replaced in Past 12 Months	To be Replaced in next 12 months	Average Age of plant in Account
360 – Collection Sewers – Force				
361 – Collection				

Sewers – Gravity				
362 – Special Collecting Structures				
363 – Services to Customers				
364 – Flow Measuring Devices				
365 – Flow Measuring Installations				
382 – Outfall Sewer Lines				

Q. What are SAIDI and SAIFI?

A. They are measures of the reliability of a utility system. SAIDI means “System Average Interruption Duration Index” and SAIFI means “System Average Interruption Frequency Index.” These measures are commonly used in the electric industry, but conceptually they can also be applied to the reliability of water distribution systems, but not sewer collection systems.

Q. Does Global track SAIDI and SAIFI?

A. Yes. Global began compiling SAIDI and SAIFI for their companies a few years ago.

Q. So what would the Commission Staff have to evaluate under this proposal?

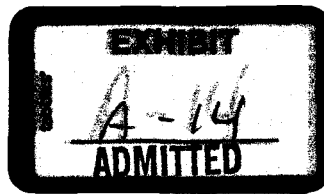
A. I believe the review would be straightforward – is the utility spending the DSIC (or CSIC) money on the account type that has the oldest infrastructure and/or the highest failure rates? Are the resulting SAIDI and SAIFI metrics improving as a result?

- 1 **Q. What would occur if the Commission Staff believed the company wasn't improving**
2 **the system with its DSIC?**
- 3 **A.** The Commission Staff could request a hearing on the efficacy of the company's use of the
4 DSIC proceeds and the efficacy of the company's System Improvement Plans.
5
- 6 **Q. What accounts and controls does Global propose to emplace in order to increase the**
7 **Commission's ability to evaluate and monitor Global's DSIC (or CSIC) accounts?**
- 8 **A.** I propose the following requirements:
- 9 1. The Global Utilities shall identify all DSIC-funded (or CSIC-funded) projects in its
10 System Improvement Plan,
11 2. The Global Utilities shall use debt and equity resources to fund the costs of those
12 projects, and
13 3. The Global Utilities shall annually file with the Commission a surcharge proposal
14 that would allow them to put the completed projects into rate base and recover the
15 WACC authorized in the last rate case – with the limitations as noted above:
16 4. For Willow Valley, no annual surcharge shall increase rates by more than 7
17 percent; for the other Global utilities, no annual surcharge shall increase rates by
18 more than 3 percent:
19 i. For any year in which the calculation of the plant additions and the WACC
20 would result in an increase greater than the amount allowed, the remainder
21 shall be deferred and emplaced in rates in a subsequent year in which they
22 can be added without exceeding the annual change cap.
23
- 24 **Q. What customer outreach and education does Global propose to implement in order to**
25 **ensure customers understand the DSIC (or CSIC)?**
- 26 **A.** Global would conduct the initial engineering and managerial analysis for each system and
27 develop a Proposed System Improvement Plan for each utility. Global would then conduct

1 public comment sessions in each service area to explain the need for the Improvements, the
2 expected benefits from the Improvements, and the proposed maximum annual change in
3 customers' bills under the Plan. Global would compile a record of all customer feedback
4 received in those public comment sessions and retain the comments, along with Global's
5 responses as discoverable data for the Commission Staff. Global would also post the
6 Proposed System Improvement Plans on each utility's website and would provide the URL
7 for those plans on the customers' bills at least quarterly.
8

9 **Q. Does this conclude your testimony?**

10 **A. Yes.**
11
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27



BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE, Chairman
BOB STUMP
SANDRA D. KENNEDY
PAUL NEWMAN
BRENDA BURNS

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER – PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA.

DOCKET NO. SW-03575A-12-

Direct Testimony

of

Matthew J. Rowell

July 9, 2012

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1 **I. Introduction.**

2 **Q. Please state your name and business address.**

3 A. My name is Matthew Rowell. My business address is PO Box 51628, Phoenix, Arizona.

5 **Q. By whom are you employed and what are your duties and responsibilities?**

6 A. I am a managing member of Desert Mountain Analytical Services ("DMAS"), a
7 consulting firm specializing in utility regulatory matters. In that capacity I have provided
8 testimony regarding various utility regulatory issues before the Arizona Corporation
9 Commission ("Commission").

11 **Q. Please state your background and qualifications in the field of utility regulation.**

12 A. A statement of my qualifications is included as Attachment Rowell-1 to this testimony.

14 **Q. What is the purpose of your testimony?**

15 A. This testimony presents and explains Global's position on the issues of the overall rates
16 of return to be approved, the costs of equity and debt faced by the Global Utilities and the
17 Global Utilities' capital structures. My testimony on rate consolidation and deferred
18 income taxes is included under separate cover.

20 **Q. Please summarize your testimony.**

21 A. This testimony demonstrates that the Global Utilities are not currently earning the rates of
22 return authorized in Global's last general rate case and that the previously authorized
23 rates of return are not sufficient to cover Global's current cost of capital. The overall
24 rates of return recommended for each of the Global Utilities are:

Table 1: Recommended Overall Rates of Return

Palo Verde	8.81%
Santa Cruz	8.79%
Valencia Water Company Town Division	10.54%
Valencia Water Company Greater Buckeye Division	11.07%
Willow Valley Water Company	10.6%
Water Utility of Greater Tonopah	10.72%
Water Utility of Northern Scottsdale	NA
Consolidated West Valley	10.17%

The recommended overall rates of return are supported by the following costs of equity, costs of debt and capital structures:

Table 2: Recommended Costs of Equity and Debt and Capital Structure

	Cost of Equity	Cost of Debt	Capital Structure (Percent Equity)
Palo Verde	11.44%	6.36%	48%
Santa Cruz	11.44%	6.58%	54%
Valencia Water Company Town Division	11.44%	7.25%	79%
Valencia Water Company Greater Buckeye Division	11.44%	6.3%	95%
Willow Valley Water Company	11.44%	4.72%	87%
Water Utility of Greater Tonopah	11.44%	6.32%	86%
Water Utility of Northern Scottsdale	NA	NA	100%
Consolidated West Valley	11.44%	7.12%	78%

1 The costs of equity are supported by an analysis of the returns on equity currently being
2 earned by a sample of water and natural gas utilities (the comparable earnings analysis.)
3 The comparable earnings analysis is supplemented by results derived from the
4 Discounted Cash Flow ("DCF") and Capital Asset Pricing ("CAPM") models. The costs
5 of debt are based on the actual interest rate for Global and the Global Utilities. The
6 capital structures for Palo Verde and Santa Cruz are developed from an imputation of
7 Industrial Development Authority bonds held by Global Parent and the capital structure
8 of the other Global Utilities are based on their actual levels of debt and equity.
9

10 **II. Cost of Capital Issues Facing Arizona's Water and Wastewater Utilities.**

11 **Q. Please explain the concept of "cost of capital."**

12 A. The cost of capital is the expected return on an investment necessary to attract investors
13 to an enterprise. The opportunity cost associated with choosing one investment over
14 others is the forgone expected return of the other potential investments. A utility seeking
15 to attract investors must provide a return at least equal to the return being provided by
16 similar (in terms of risk) other enterprises. That return necessary to attract investment is
17 the utility's "cost of capital." A utility that earns a return on its rate base at least equal to
18 its cost of capital (and that is efficiently managed) will be able to attract necessary capital
19 and maintain its financial integrity.
20

21 The overall cost of capital, or weighted average cost of capital ("WACC"), is the
22 weighted average of the cost of debt and the cost of equity. A utility's cost of debt is
23 readily observable (it is the interest rate on its bonds) but the cost of equity is not directly
24 observable and must be estimated.
25
26
27

1 **Q. What is the difference between a utility's cost of equity, the authorized return on**
2 **equity and the realized return on equity?**

3 A. The cost of equity is the forward looking opportunity cost of an equity investment. It is
4 also the expected return required to attract equity capital. The authorized return on equity
5 is the estimate of the cost of equity that the regulatory commission uses to determine the
6 utility's revenue requirement. The realized (or actual) return on equity is a backward
7 looking accounting measurement that shows the return on equity that was actually
8 realized over a given year. The realized return on equity is calculated by dividing the
9 utility's net income by its total equity balance.

10
11 **Q. Please discuss the challenges facing Arizona utilities with respect to the cost of**
12 **equity.**

13 A. Water and wastewater utilities in Arizona have been challenged by both: (1) the
14 authorized ROEs awarded by the Commission; and (2) by the level of realized ROEs they
15 have actually been able to achieve.

16
17 ACC-authorized ROEs have been low relative to those authorized in other states. And
18 equally important, the policies and practices of the Commission make it very difficult for
19 Arizona's water utilities¹ to realize the ROEs authorized by the Commission. In fact a
20 review of realized ROEs of Class A Arizona water utilities reveals that on average they
21 actually provide a return of only 2.91% to their equity investors over the past 11 years.²

22
23
24
25 ¹ Throughout this testimony the term "water utilities" will be used to refer to both water and
wastewater utilities collectively.

26 ² This is a weighted average of the realized returns for each company shown in Table 3 over the
27 11 years (2000-2010.) The returns were weighted by the equity balances of each utility in each
year.

1 Looking at just the past 5 years reveals that the same utilities provided an average return
2 on equity of only 1.75%.³

3
4 A 1.75% utility investor return on equity is absurd. A quick review of CD rates
5 demonstrates that five-year “jumbo” CDs (requiring a deposit of at least \$100,000)
6 provide returns around 1.75%.⁴ And a CD is not an investment – they are backed by the
7 FDIC so there is no chance of losing one’s money. Secondly, CDs carry no liability risks
8 for the CD holder – no one is going to sue you claiming that your CD had an odor issue.
9 Third, CDs will never necessitate subsequent investment by the CD holder – unlike a
10 utility company which could have a well or system failure at any moment necessitating
11 another large investment. Fourth, CDs carry no regulatory costs or risks – CD holders do
12 not have to monitor regulatory changes, policies and decisions; they do not have to meet
13 regulatory standards and timelines, they do not face any costs of compliance. Fifth, CD
14 holders do not have to provide any good or service to anyone at all – there are no
15 customers to care for, no water to be tested and delivered, no community that needs
16 support and involvement.

17
18 And yet, in the Arizona water industry – a five year jumbo CD that avoids all of those
19 issues, all of the things that make a business a business, capital an investment, i.e., the
20 things that comprise “risk” and require the promise of “reward” – all of those things
21 provide Arizona water companies with no upside to a five year jumbo CD because a five
22 year jumbo CD provides the same return with none of those risks.

23
24
25 ³ This is a weighted average of the realized returns for each company shown in Table 3 over the
26 5 years (2006-2010.) The returns were weighted by the equity balances of each utility in each
year.

27 ⁴ www.bankrate.com.

1 So as the Commission and the customers wonder why water companies won't take over
2 troubled systems, won't invest in new growth, require larger and larger hook-up fees and
3 deposits, and why few of the smaller, less-capitalized systems gets consolidated – there is
4 no need to look further than the Arizona ROEs providing lower returns than the market
5 requires.
6

7 **Q. How do you support your claim that authorized ROEs in Arizona are below what is**
8 **typical in other states?**

9 A. Several sources of information indicate that authorized ROEs in Arizona are below those
10 typical in other states. Independent equity analysts have indicated that Arizona's
11 authorized ROEs are below what is typical in other states and my own research on this
12 point confirms this. Additionally, specific Commission decisions in previous Global,
13 Litchfield Park and Arizona-American rate cases provide anecdotal evidence of the
14 Commission's propensity to authorize ROEs below those recommended by its Staff.
15

16 In April of 2011 Janney Montgomery Scott, a well-respected investment firm with roots
17 tracing back to 1832, introduced its Regulatory Climate Indicator (RCI) report which
18 examined and ranked several states based on the regulatory climate for water utilities.⁵
19 Janney collected information on 16 states where investor owned water utilities are active.
20 **Of those states Arizona was ranked dead last.** While other factors (discussed below)
21 influenced this ranking, the most important variable in Janney's rankings is the average
22 ROE granted to water utilities by the state commission and Arizona's propensity to
23 authorize low ROEs had a substantial impact on Janney's ranking of Arizona.
24
25
26

27 ⁵ Janney Water Journal - April 2011.

1 Each November Public Utilities Fortnightly publishes authorized ROEs from utility
2 commissions across the country. Examining several years of these Public Utilities
3 Fortnightly surveys indicates quite clearly that ROEs granted in Arizona are well below
4 what is typical nationally – and more so when one compares those to the Commission’s
5 ROE decisions for water companies. What’s really interesting about that review is that in
6 most years, the Commission’s Staff’s ROE position is much closer to the national
7 average than the Commission-imposed ROE. It appears that sometimes the
8 Commissioners use the ROE as a lever to ratchet rates down, instead of as a tool to attract
9 investment and improve service quality.

10
11 Three recent cases illustrate the Arizona Commission’s propensity to authorize ROEs that
12 are not only low compared to national norms but are even below those recommended by
13 the Commission Staff. First, in Decision 70372 the Commission authorized an ROE of
14 8.8% for Arizona-American’s Anthem district. This was well below the 10.3%
15 recommended by Commission Staff. Second, in Global’s last rate case the Commission
16 authorized an ROE of 9.0% – a full 100 basis points below Staff’s recommended 10.0%
17 return (see Decision 71878.)

18
19 Finally, in Litchfield Park Service Company’s last rate case (Decision 72026) the
20 Commission imposed the astonishingly low ROE of 8.01% when the Staff was
21 recommending 9.2% and RUCO was recommending 9.0%. These three examples are the
22 most extreme cases but they are certainly not the only cases where Commission-imposed
23 ROEs were below those recommended by the Staff.

1 **Q. Besides their low levels are there other notable aspects of authorized ROEs in**
2 **Arizona?**

3 A. The Commission's propensity to impose ROEs significantly below those recommended
4 by the ALJs, by its Staff and in some cases even by RUCO greatly increases the level of
5 regulatory uncertainty faced by Arizona's utilities. The signal this sends to equity
6 investors is that the ACC cares little about their ability to receive an adequate return on or
7 of their investment. Rather, the ACC appears to view the authorized ROE as a highly
8 malleable variable that it can set with little technical justification. This sends a chilling
9 signal to equity investors – increasing the cost of equity capital for Arizona utilities.

10
11 Anyone who reads cost of capital testimony in Arizona has to have noticed that almost
12 every Arizona utility makes this point clearly: the Commission has, because of its
13 decisions and actions, achieved a national reputation for being anti-investment in water.
14 The fact that Arizona lies in the midst of the Sonoran Desert and the Rocky Mountain
15 states – two of the most water-challenged areas in the United States – only increases
16 investors' bafflement and fear of the Commission.

17
18 **Q. Turning now to achieved ROEs, how do you support your claim that Arizona's**
19 **water and wastewater utilities are not achieving their authorized ROEs?**

20 A. I calculated the realized ROEs from 2000 to 2010 of several of the larger water utilities in
21 the state. Not only are the realized ROEs significantly below what water utilities are
22 earning outside of Arizona (discussed further below) but they don't come close to the
23 authorized ROEs established by the ACC.

Table 3: Average Realized and Authorized ROEs 2007-2010⁶

Company	11 Year Average Realized ROE 2000-2010	Average Authorized ROE Effective 2000-2010
Arizona Water	8.38%	9.51%
Arizona American (Water and Sewer)	0.70%	9.97%
Rio Rico (Water and Sewer)	4.77%	8.70%
LPSCO (Water and Sewer)	5.35%	8.75%
Chaparral City	-1.05%	9.60%

Table 3 shows clearly that Arizona's water industry is characterized primarily by under-earning. In fact over the 55 observations (5 companies over 11 years each) there were only eight instances where the authorized ROE was achieved in a given year. **Over the past 5 years the authorized ROE was not achieved by any of the utilities in any year.** This statewide history of low returns naturally causes equity investors to perceive Arizona as a high risk environment.

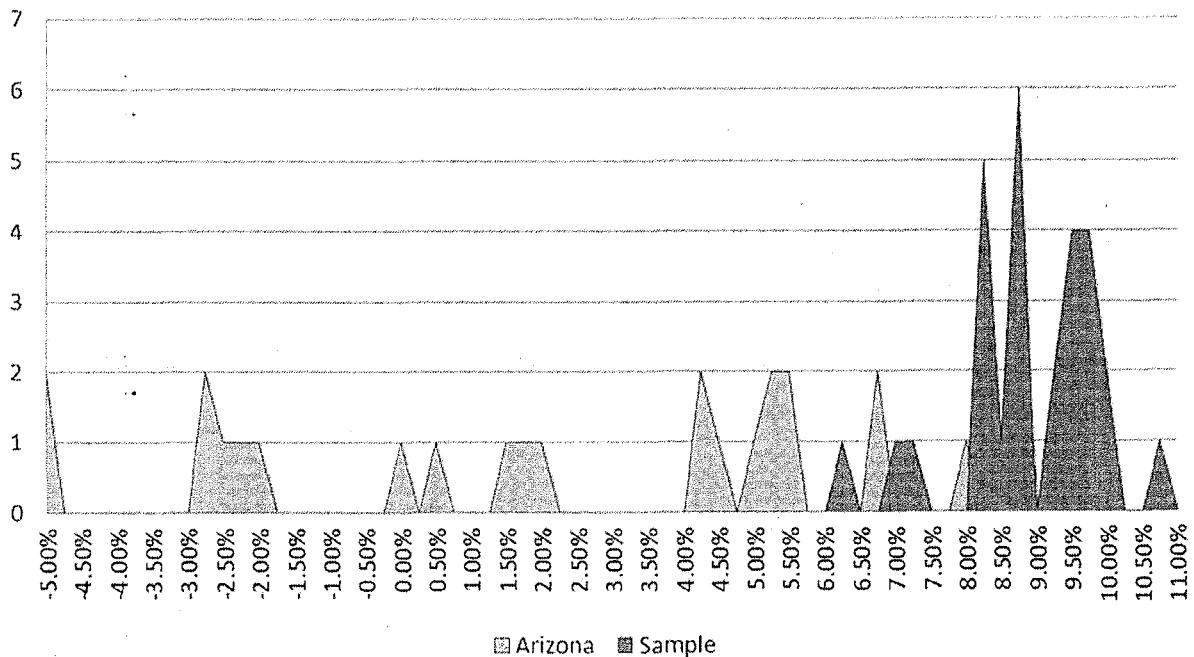
The evidence demonstrates that this propensity for under-earning is much more prevalent among Arizona's water utilities than it is among the utilities that are typically used as the sample for developing recommendations regarding authorized ROEs.

Chart 1 below compares the distribution of actual ROEs of the Arizona utilities presented above compared to the distribution of actual ROEs of a sample of publicly traded water

⁶ Source of realized ROEs: Net income and equity balances taken from ACC annual reports. Source of authorized ROEs: ACC Decisions 61831, 67093, 68858, 69440, 70209, 70351, 70372, 71410, 72047, 64282, 66849, 68302, 71845, 68176, 71308, 65436, 72026 and 67279.

companies. This sample includes the six water utilities typically used by Staff in their cost of equity analysis as well as one other (smaller) publically traded water utility.⁷

**Chart 1: Distributions of Actual Annual ROEs
Arizona Water Utilities vs. Staff Sample Water
Utilities
2007-2010**

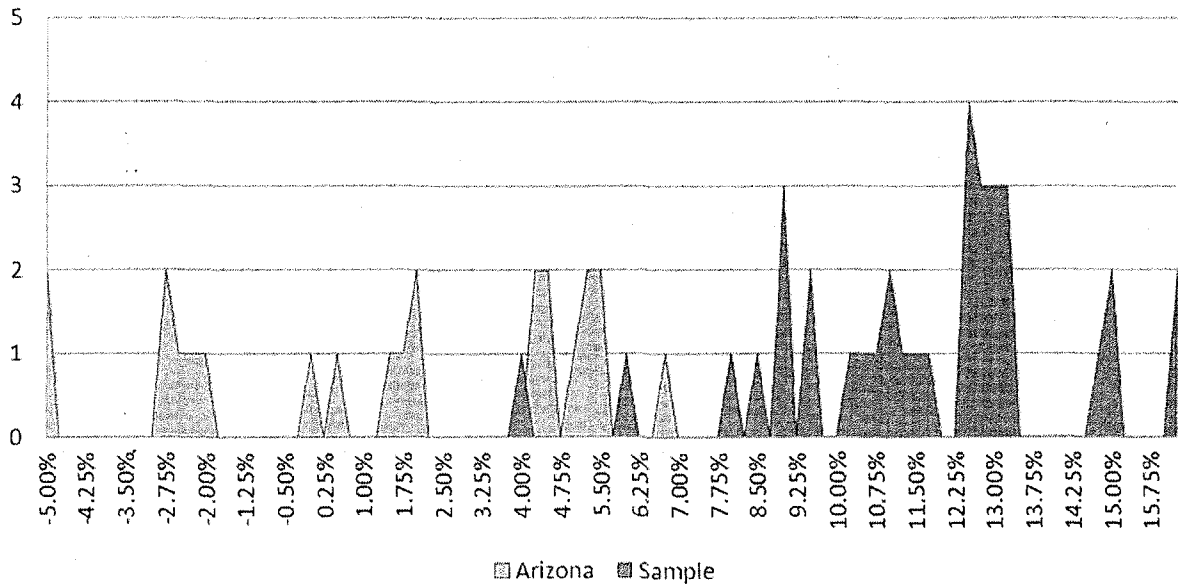


The Arizona realized ROEs have both a lower mean and a wider spread relative to the sample of utilities.

Making the same comparison but using the natural gas distribution utilities utilized by RUCO⁸ in their cost of equity analyses reveals the same conclusion.

⁷ The water utilities included in the sample are SJW Corp (SJW), American States Water (AWR), California Water (CWT), Aqua American (WTR), Connecticut Water (CTWS), Middlesex Water (MSEX) and York Water Co. (YORW.)

**Chart2: Distributions of Actual ROEs
Arizona Water Utilites vs. RUCO Sample Gas
Utilities
2007-2010**



The Arizona water utilities have both a lower average and wider spread than the natural gas sample.⁹

The above analyses clearly demonstrate that Arizona's Class A water utilities persistently under-earn relative to their authorized ROEs and relative to their peers in other states and industries. Additionally, the Arizona returns are not only on average lower than their out of state peers they are also more variable (i.e., they have a wider spread.) Technically a wider spread means the distribution of Arizona returns has a higher standard deviation,

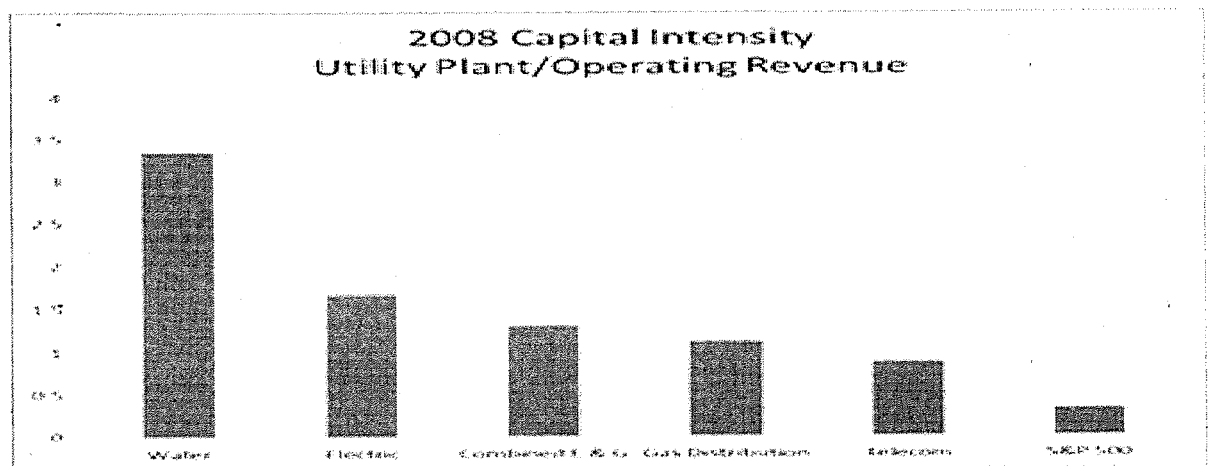
⁸ The gas utilities included in the sample are AGL Resources, Inc (AGL), Atmos Energy Corp. (ATO), Laclede Group Inc. (LG), New jersey Resources Corporation (NJR), Northwest Natural Gas Co. (NWN), Piedmont natural Gas (PNY), South Jersey Industries, Inc (SJI), Southwest Gas Corp (SWX and WGL Holdings, Inc (WGL).

⁹ For Arizona utilities: the average ROE is 1.4% with a standard deviation of 0.060. For the sample of gas utilities the average ROE is 11.47% with a standard deviation of 0.027.

1 i.e., higher risk. The standard deviation of the Arizona sample is 83% larger than that of
2 the national water and gas utilities used by Staff and RUCO in their cost of equity
3 analysis. The mean of the Arizona sample is 84% less than the national sample. Of
4 course investors considering an equity investment in an Arizona water company take this
5 into account. The historical record indicates that they can expect greater variability and
6 lower average returns in the Arizona water utility industry than elsewhere.

7
8 **Q. How do you explain the pervasive under-earning of Arizona's water utility**
9 **industry?**

10 **A.** The water utility industry in Arizona faces many challenges. Some of those challenges
11 are faced by the industry nationwide but many result from circumstances in Arizona.
12 Challenges that face the industry as a whole include the extremely capital intensive
13 nature of the business coupled with the need for ongoing capital reinvestment and the
14 enhancement of EPA regulations. The extreme capital intensity of the water industry
15 is demonstrated by the following chart which shows the amount of capital investment
16 (i.e., plant) necessary to generate a dollar of operating revenue:



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26 **US Utility Reports**

1 In Arizona these challenges are exacerbated by development risk, the prevalence of old
2 and dilapidated systems in some rural areas, revenue attrition due to conservation, and the
3 regulatory environment.

4
5 **Q. Can you expand on how the regulatory environment in Arizona makes it difficult**
6 **for water utilities to earn their authorized ROEs?**

7 **A.** Several regulatory factors serve to depress realized ROEs in Arizona:

- 8 (1) the strict adherence to an historic test year coupled with rate case processing times
9 that average well over a year;
10 (2) the use of rate structures explicitly designed to encourage conservation without
11 adjustments to revenue requirements to account for conservation;
12 (3) the Commission has historically imposed severe conditions on CC&N expansions;
13 (4) abnormally low authorized ROEs, as compared to other states; and
14 (5) the relative small size of most Arizona water utilities.

15
16 Note that I am not saying that a historical test year in and of itself is inherently bad, nor
17 am I saying that conservation-based rate designs are bad. But the confluence of all these
18 factors without some recognition in the ratemaking process results in severely depressed
19 realized ROEs. Clearly this is something the Commission understands – because in the
20 last APS rate case, APS was provided with over a year of post-test year plant adjustments
21 and annual recovery of all its conservation expenses, and in the recently approved APS
22 Settlement it received the Lost Fixed Cost Revenue adjustor allowing it to increase
23 revenues by 1% a year to offset the impact of conservation and rate case delays. The
24 Commission and Staff justify that treatment using the same arguments that I am making
25 here – chronic under-earnings negatively impact investors and increase the cost of capital
26 and reduces the utility's ability to provide reliable, affordable, and sustainable utility
27 service.

1 In common with utilities around the country, many Arizona utilities (including Global)
2 face the need for significant re-investment in older distribution plant. Because of
3 Arizona's strict adherence to the historical test year standard these re-investments face
4 the same carrying cost problem as new utility investments – there is a significant lag
5 between when the investments are made and when a return on and off the investments
6 can begin.

7
8 Some state utility commissions have addressed this problem using Distribution System
9 Investment Charges (DSICs) that allow for returns to be earned on these re-investments
10 without a full rate case.¹⁰ Not only does Arizona (so far) not allow for a DSIC-like
11 mechanism but the extremely long processing times for rate cases in Arizona further
12 exacerbates these problems associated with the recognition of investments. It typically
13 takes well over a year to complete a rate case for a class A utility in Arizona. This means
14 that Arizona utilities are constantly playing catch up because when rates go into effect
15 they represent a level of capital investment that's close to two years old.

16
17 The use of tiered rates is also contributing to the erosion of earnings among Arizona
18 utilities. Tiered rates are specifically intended to reduce consumption, yet the
19 Commission has not recognized that consumption may decline when it sets rates.
20 Previous to the economic downturn the full effect of tiered rates on revenue collections
21 was masked by customer growth. But now that customer growth has leveled off at lower
22 (and sustainable) levels the effect of tiered rates is becoming clear. While conservation is
23 a laudable goal, its effect on utilities' revenue cannot be ignored.

24
25 ¹⁰ DSICs go by different names in different states and each state has implemented them slightly
26 differently. According to the National Association of Water Companies California, Connecticut,
27 Delaware, Illinois, Indiana, Missouri, New Hampshire, New Jersey, New York, Ohio and
Pennsylvania each allow for DSIC like mechanisms, see: <http://www.nawc.org/state-utility-regulation/regulatory-practices/distribution-system-investment-charge.aspx>.

1
2 During the previous decade the Commission had a policy of requiring utilities to obtain
3 an Approval of Construction (AOC) from the ADEQ for plant needed to serve CC&N
4 expansion areas. Receiving an AOC requires the construction of plant. The requirement
5 to obtain an AOC by a specific date was included in several Commission orders granting
6 CC&N expansions. So the Commission effectively ordered utilities to build plant by
7 specified dates. This was a highly problematic policy that contributed to a significant
8 amount of non-used-and-useful plant being built. While I understand that the
9 Commission no longer is pursuing this policy, the effects of its past imposition will linger
10 for years, if not decades.

11
12 Finally, it is the case that utilities in Arizona are relatively small. Small size affects both
13 the revenues and costs of utilities. Small utilities' revenues are far more susceptible to
14 shocks resulting from customer conservation (or customer loss) than larger utilities.
15 Consider the example of a large industrial user of water that decides to conserve and use
16 less water. A large utility with a diverse customer base will be able to absorb that loss
17 much more easily than a smaller utility that is far more dependent on each of its large
18 users for revenue. On the cost side smaller utilities are much more susceptible to
19 earnings erosion due to equipment failure than are larger utilities. Consider a pump
20 failure for example: to a large utility operating multiple systems in multiple states a
21 single pump failure is really a drop in the bucket and will have little impact on earnings.
22 For a smaller utility, the same pump failure can have a much greater impact on earnings.

23
24 The Janney report discussed above cites some of these same issues as reasons why
25 Arizona scored so low in Janney's utility rankings. The adherence to an historical test
26 year, long rate case processing times, and the lack of a DSIC-like mechanism all
27 contribute to a lower ranking under the methodology used in that report.

1 **Q. What other sources can you point to support your contention that the environment**
2 **in Arizona is inherently unfavorable to the water utility industry?**

3 A. Statements made in American States Water Company's 2010 annual report to its
4 shareholders are telling:

5
6 Also unacceptable were the low historical returns on our investment in
7 Chaparral City Water Company (CCWC), our Arizona subsidiary. In light of
8 those returns, we did not have an interest in growing CCWC. We further
9 concluded that given CCWC's small size, it made business sense to consider
10 a sale. During the first six months of 2010, we implemented a sale process
11 that resulted in our signing an agreement to sell CCWC to EPCOR Water
12 (USA) Inc. for \$35 million, including \$29 million in cash and \$6 million in
13 assumed debt. ... We plan to use the cash from the sale to fund capital
14 expenditures at GSWC, allowing us to defer one of our periodic AWR
15 equity issuances.¹¹

16
17 This quote demonstrates the effect of the ACC's decisions: private capital is fleeing the
18 Arizona water utility industry. Rather than continuing to invest in Arizona, rational
19 investors are seeking to shed their Arizona water utility investments. Similarly,
20 American Water some time ago stopped supplying its Arizona subsidiary with equity
21 capital¹² and has now sold that subsidiary.

22
23 **Q. Please explain how the above factors are relevant to the issue of setting a forward**
24 **looking cost of equity.**

25 A. The above discussion clearly demonstrates that Arizona water utilities face a higher than
26 typical level of risk. Specifically, the facts clearly show that Arizona water utilities are at
27 great risk of not achieving their authorized ROE (since no Class A water utility in the

¹¹ American States Water Company, 2010 Annual Report to Shareholders page 13. GSWC is Golden State Water Company, American States' California subsidiary.

¹² See Arizona American's most recent rate case application at pages 4-5 Docket No. W-01303A-10-0448.

1 state has managed to achieve its authorized ROE in the past five years.) This means that
2 ROEs based on samples of non-Arizona utilities will understate the necessary ROE for an
3 Arizona water utility. Thus ROE estimates that are developed through the use of a
4 sample of non-Arizona utilities (whether they are based on a comparative earnings
5 analysis, a DCF analysis, a CAPM analysis or some other method) will need to be
6 augmented upwards to reflect the circumstances in Arizona.

7
8 **Q. Why does the statewide history of low returns imply that Arizona water utilities face**
9 **a higher cost of capital than is typical?**

10 A. The expected return required to attract capital to an investment depends on that
11 investment's perceived risk. The higher the risk, the higher will be the expected return to
12 attract sufficient capital.¹³ A history of low returns indicates that Arizona is a high risk
13 environment for water utility equity investors. Equity investors will require relatively
14 higher expected returns to invest in Arizona's industry which raises the cost of capital for
15 Arizona's water utilities.

16
17
18 **Q. Aren't water utilities typically considered to be low risk? How can a monopoly**
19 **service provider be thought of as a high risk investment?**

20 A. That is a legitimate and logical question. The wide-spread perception that water utilities
21 are a low risk investment is based primarily on utility bonds which are typically highly
22 rated. Utilities may present low risk to bond investors but that does not mean that equity
23 investors face the same risk. Utility bond ratings are generally high because it is widely
24 accepted that regulators will not allow a large utility to default on the obligations of its

25
26 ¹³ This basic relationship between risk and return is fundamental to finance theory and practice.
27 Markowitz, Harry M. "Portfolio Selection," The Journal of Finance, Vol. VII, March 1952, 77-
91 provides an early exploration of the implications of the risk-return relationship.

bonds. However, experience shows that no such protection is afforded equity holders. The above analysis demonstrates that this is especially true in Arizona. Equity investors face the real probability of earning a below normal return which inevitably leads to share price depreciation and a loss of capital (or to put it in terms of debt, a loss of principal.)

III. The Global Utilities' Current Financial Situation.

Q. Turning now to the Global Utilities, what rate of return on equity have they achieved during the test year?

A. The realized ROEs of the Global Utilities are summarized in Table 4:

Table 4: Realized and Authorized ROEs for the Global Utilities

	2011 Realized ROEs	Authorized ROEs
Palo Verde (actual)	3.27%	9.00%
Santa Cruz	3.52%	9.00%
Valencia Water Company Town Division	-2.33%	9.00%
Valencia Water Company Greater Buckeye Division	1.48%	9.00%
Willow Valley Water Company	-2.48%	9.00%
Water Utility of Greater Tonopah¹⁴	NA	NA
Water Utility of Northern Scottsdale	NA	NA

Each of the Global Utilities failed to achieve its authorized Return on Equity during the test year. The above discussion demonstrates clearly that this is not unusual for an

¹⁴ The Water Utility of Greater Tonopah and the Water Utility of North Scottsdale both have negative equity balances which makes the concept of return on equity meaningless.

1 Arizona utility. Equity investors understand that Global's situation is not unique and that
2 below normal equity returns are typical in Arizona.

3
4 **Q. In addition to the return on equity, can you provide additional details on the Global**
5 **Utilities' financial situations?**

6 **A.** The financial situation of the Global Utilities has improved since Global's last rate case,
7 but as Table 4 illustrates these utilities are not earning their authorized rates of return.
8 The rates for Palo Verde were phased in and the final step of the phase in did not become
9 effective until January 1, 2012 (the end of the test year.) However, even if the final step
10 of the previous rate increase had been effective throughout the test year, Palo Verde's
11 Return on Equity would have been only 5.72%. None of the other utilities were subject
12 to a phase in from the last rate case.
13

14
15 **IV. The Current Economic Situation's Impact on Required ROEs.**

16 **Q. There have been significant economic disruptions over the past several years.**
17 **Please explain how the current economic situation impacts required returns on**
18 **equity for Arizona water utilities.**

19 **A.** In recent years we have experienced a historic deflation in real estate values, the most
20 severe recession in generations, a government bailout of the financial industry, and a
21 remarkable increase in the Federal Government's debt. The post-recession environment
22 has been characterized by anemic economic growth, persistent high unemployment, a
23 historic down-grading of US government debt and wild swings in equity prices. The
24 Federal Reserve's policy known as quantitative easing was intended to increase economic
25 growth by increasing the money supply, however the results have not been impressive as
26 economic growth has been slow and the Fed's policy has stoked fears (if not the
27

1 actuality) of excessive inflation. Additionally, a significant number of Americans still
2 owe more on their home's mortgage than the home is worth which creates both
3 downward pressure on and uncertainty about the real estate market. More recently it has
4 become apparent that certain European governments have accumulated an unsustainable
5 debt load. A default by these governments could be disruptive to the global financial
6 system and while European leaders have given assurances that a default will not happen
7 they have been slow in developing a plan of action to comprehensively deal with the debt
8 problem.

9
10 These factors have led to a remarkable level of risk and uncertainty for equity investors
11 of all kinds. The real fear of capital losses has led investors to seek out low risk
12 investments (such as US Government debt) which has driven their interest rates to
13 historic lows, while at the same time driving the total returns on US Government debt to
14 historic highs.

15
16 Because of their monopoly status, water utilities *could* be thought of as an island of safety
17 in a sea of risk and uncertainty, but this is certainly not the case in Arizona. As discussed
18 in detail above, equity investors face substantial risks and uncertainty in the Arizona
19 water utility industry.

20
21 In addition to the water utility specific issues already discussed, it is also the case that
22 Arizona was (and is) in many ways at the epicenter of the real estate implosion.
23 Arizona's economy has always been highly dependent on real estate development and
24 that industry's collapse has hit Arizona (and its water utilities) hard. Additionally, in
25 national rankings of foreclosed homes, underwater mortgages and vacant residences
26
27

1 Arizona still persistently ranks high.¹⁵ So the risk of further deterioration in Arizona's
2 real estate market still haunts the state.

3
4 Given the twin threats of regulatory uncertainty and real estate uncertainty it is doubtful
5 that equity investors would perceive Arizona's water utility industry to be a safe haven
6 from risk.

7
8 **Q. How has the macroeconomic situation affected cost of equity estimation more**
9 **generally?**

10 A. The excessive risk of recent years has sparked a "flight to safety" by investors. Seeking
11 to avoid risk, investors have been buying US Government debt securities. The Federal
12 Reserve also acquired large quantities of US Government debt as part of its Quantitative
13 Easing policy. This increased demand for US Government bonds has driven the price of
14 those bonds up which drives the yield (and interest rate) of the bonds down. In spite of
15 the lower interest rates and yields, the total return accruing to US Government bond
16 holders has increased dramatically due to price appreciation.

17
18 This is an issue for cost of equity estimation because the return on US Government bonds
19 is commonly used as the proxy for the risk-free rate of return component of the CAPM.

20
21 ¹⁵ RealtyTrac, Q1 2012 Foreclosure Activity Lowest Since Q4 2007, April 5, 2012
22 ([http://www.realtytrac.com/content/foreclosure-market-report/foreclosure-trends--q1-2012-and-](http://www.realtytrac.com/content/foreclosure-market-report/foreclosure-trends--q1-2012-and-march-2012-foreclosure-report----realtytrac-7111)
23 [march-2012-foreclosure-report----realtytrac-7111](http://www.realtytrac.com/content/foreclosure-market-report/foreclosure-trends--q1-2012-and-march-2012-foreclosure-report----realtytrac-7111)) Quote: "Arizona's foreclosure rate was the
24 nation's highest state foreclosure rate in March.";

25 NuWire Investor, Underwater Mortgages Belie housing Recovery, March 6, 2012
26 ([http://www.nuwireinvestor.com/articles/underwater-mortgages-belie-housing-recovery-](http://www.nuwireinvestor.com/articles/underwater-mortgages-belie-housing-recovery-58847.aspx)
27 [58847.aspx](http://www.nuwireinvestor.com/articles/underwater-mortgages-belie-housing-recovery-58847.aspx)) Quote: "Statewise, Nevada had the highest negative equity rate, with 61% of
homeowners underwater on their mortgages. Arizona, at 48%, and Florida, at 44%, ranked
second and third in the CoreLogic ranking.";

US Census data available at <http://www.census.gov/hhes/www/housing/hvs/rates/index.html>
show Arizona is ranked 4th nationally for vacant homes.

1 It is questionable whether the depressed yields and inflated total returns associated with
2 the flight to safety and Federal Reserve intervention are consistent with the theoretical
3 framework of the CAPM. This issue will be discussed in greater detail below under the
4 section on CAPM analysis.

5
6 **V. ROE Estimation Based on the Comparable Earnings Approach.**

7 **Q. Please describe the Comparable Earnings approach to estimating ROEs.**

8 A. The Comparable Earnings approach is simple compared to other commonly used ROE
9 estimation techniques. The Comparable Earnings approach involves selecting a sample
10 of companies and calculating their actual or expected returns on equity. The sample
11 returns on equity are averaged and used as a proxy for the required return on equity of the
12 utility in question. In the interest of minimizing the amount of subjective inputs, the
13 Comparable Earnings analysis presented here is based on the actual returns on equity
14 achieved by the sample's utilities, not on earnings projections.

15
16 **A. Comparable Earnings vs. DCF and CAPM.**

17 **Q. How does the Comparable Earnings approach compare to more abstract methods**
18 **such as the DCF model and CAPM?**

19 A. A Comparable Earnings analysis based on actual returns requires no subjective
20 judgments regarding financial algorithms, models or figures. The only subjective
21 decision the analyst must make is the selection of the companies to include in the sample.
22 In contrast, in order to apply the DCF or CAPM models several subjective determinations
23 regarding financial variables must be made. With the DCF model the analyst must select
24 the appropriate expected growth rate (or rates) of dividends. The analyst must pick a
25 proxy for the expected growth rate because the expected dividend growth rate only really
26 exists in the minds of investors, making its actual value unknowable. Similarly, with the
27

1 CAPM the analysts must pick appropriate stand-ins for wholly theoretical variables.
2 Appropriate proxies for the "risk free" rate of return, the market risk premium and the
3 expected correlation between a given securities return and the market return must be
4 selected by the analyst.

5
6 **Q. What are the other merits of the Comparable Earnings approach?**

7
8 A. Use of a Comparable Earnings analysis is consistent both with the legal and economic
9 underpinnings of rate of return regulation. From an economic perspective, the cost of
10 capital is an opportunity cost, the foregone opportunities associated with making a
11 particular investment. A Comparable Earnings approach produces the most
12 straightforward calculation of the real opportunity cost faced by a potential investor in the
13 Global utilities. The Comparable Earnings approach fits the concept of "corresponding
14 risk" espoused by the seminal *Hope* and *Bluefield* US Supreme Court cases. The *Hope*
15 and *Bluefield* cases are widely regarded as foundational to modern rate base rate of return
16 regulation. The cases' assessment of cost of capital issues is best summarized in the
17 following quote from *Hope*:

18 From the investor or company point of view it is important that there be
19 enough revenue not only for operating expenses but also for the capital costs
20 of the business. These include service on the debt and dividends on the
21 stock. By that standard *the return to the equity owner should be*
22 *commensurate with returns on investments in other enterprises having*
corresponding risks. That return, moreover, should be sufficient to assure
confidence in the financial integrity of the enterprise, so as to maintain its
credit and to attract capital.¹⁶

23 The three cost of capital standards established by *Hope* and *Bluefield* are commensurate
24 (i.e., comparable) earnings, financial integrity and capital attraction. A Comparable
25 Earnings analysis of the cost of equity corresponds directly and literally with the

26
27 ¹⁶ Federal Power Commission et. al. v. Hope Natural Gas Company (320 U.S. 591), Emphasis
added.

1 commensurate earnings standard. The Comparable Earnings approach also satisfies the
2 financial integrity standard since only companies characterized by a high degree of
3 financial integrity should be included in the sample used to develop the cost of equity.
4 Because of the enhanced risk associated with operating a utility in Arizona (discussed
5 above) a Comparable Earnings analysis (or any other type of analysis) based on a sample
6 of companies with more normal risk profiles will have to be augmented upwards in order
7 to satisfy the capital attraction standard.
8

9 **Q. Do the DCF and CAPM models also conform to the standards laid out in Hope and**
10 **Bluefield?**

11 A. While the DCF and CAPM may not directly contradict the *Hope* and *Bluefield* standards
12 they do not conform to the standards as directly as the Comparable Earnings approach
13 does. Also, the amount of subjective determinations that must be made when formulating
14 the DCF and CAPM models will always raise questions about the extent to which their
15 results conform with the *Hope* and *Bluefield* standards.
16

17 **Q. Is the Comparable Earnings method widely used?**

18 A. I have not conducted a comprehensive review of the cost of equity methodologies used
19 by the various state commissions. The most recent available review indicates that 21
20 state commissions and federal regulatory agencies favor the Comparable Earnings
21 method and that 27 use a combination of different methods (which may or may not
22 include the Comparable Earnings method.)¹⁷
23

24 However, there is considerable resistance to the Comparable Earnings approach. I
25 believe this resistance is the result of Comparable Earnings' simplicity. Complex
26

27 ¹⁷ NARUC Compilation of Utility Regulatory Policy 1994-1995, cited in The Cost of Capital, A Practitioners Guide David C. Parcell 2010 edition at 88.

1 economic and financial models present an air of superiority and mystery. The
2 practitioner who uses these models is privy to special truths that the layman is closed off
3 from. Furthermore, regulators, companies and analysts like believing that their decisions
4 are based on a Nobel Prize-winning model.¹⁸ In contrast, the comparable earnings
5 approach is not complex and does not require knowledge of esoteric financial theory.
6

7 That said, the fact remains that Comparable Earnings is the most accurate way to measure
8 investor expectations – it is precisely how people make economic choices in the real
9 world. A woman buys her SUV from a dealer because she believes that dealer will
10 provide her with the best price for the SUV she needs. A man buys groceries from the
11 store that he believes provides him the best food for the price. These decisions are based
12 on the entirety of a person's historical experience. Rare is the person who develops a
13 highly stylized model that ignores all the variables and assumptions about an SUV's
14 mileage, repair costs, and depreciation and focuses entirely on one or two esoteric
15 variables.
16

17 I assume that for the average person and the average investor, as they read through cost
18 of capital testimony they will recognize that they understand Comparable Earnings and
19 are baffled by DCFs and CAPM. Being simple, reflective of reality, and understandable
20 are all reasons for reliance on Comparable Earnings – but those are also the reasons why
21 many experts spurn it, i.e., Comparable Earnings decreases their value as an expert.
22
23
24

25 ¹⁸ Note that the developers of the CAPM did receive a Nobel Prize for their work but they
26 developed the CAPM as a tool to develop optimal portfolio selection techniques, not as a tool for
27 estimating the cost of equity. So the Nobel Prize really isn't an endorsement of the CAPM as it
is used in utility ratemaking.

B. Selection of Sample Utilities.

Q. Please discuss how you selected the sample utilities to use in the Comparable Earnings analysis.

A. To select a sample I started with the samples recently used by ACC Staff's and RUCO's cost of capital analysts¹⁹.

RUCO		STAFF	
American States	AWR	American States	AWR
California Water	CWT	California Water	CWT
Aqua American	WTR	Aqua American	WTR
Middlesex Water	MSEX	Middlesex Water	MSEX
SJW Corp	SJW	SJW Corp	SJW
AGL Resources, Inc.	GAS	Connecticut Water	CTWS
Atmos Energy Corp	ATO		
Laclede Group, inc.	LG		
New jersey Resources Corporation	NJR		
Northwest Natural Gas Co.	NWN		
Piedmont Natural Gas Company	PNY		
South Jersey Industries, Inc	SJI		
Southwest Gas Corporation	SWX		
WGL Holdings, Inc	WGL		

I then calculated the realized return on equity in 2011 for each of these companies. I removed the companies with both the highest and the lowest ROEs (SWX 4.51% and SJI 14.31%.) Removing the high and low observations from a sample prevents undue influence of extreme circumstances. I also excluded AGL Resources because of significant one-time expenses associated with its recent merger with Nicor. I have replaced AGL Resources with UGI Corporation, another natural gas utility. This provides the following sample of utilities:

American States	AWR
Aqua American	WTR
California Water	CWT

¹⁹ See testimony of Staff and RUCO in Docket W-01445A-11-0310.

Connecticut Water	CTWS
Middlesex Water	MSEX
SJW Corp	SJW
York Water Co.	YORW
Atmos Energy Corp	ATO
Laclede Group, Inc.	LG
New Jersey Resources Corporation	NJR
Northwest Natural Gas Co.	NWN
Piedmont Natural Gas Company	PNY
UGI CORP	UGI
WGL Holdings, Inc	WGL

Q. Why is it appropriate to include natural gas distribution companies in the sample?

A. The natural gas distribution industry has many similarities to the water industry. Natural gas utilities are known to suffer from revenue attrition due to energy efficiency programs in much the same way that Arizona water utilities suffer from attrition resulting from conservation orientated rate designs. Also, the number of water utilities for which detailed financial information is available is limited, so inclusion of the natural gas utilities allows for a large sample which limits the impact that any one company's unusual circumstances can have.

Use of natural gas utilities as a stand in for water utilities is not unique to this testimony. As stated above RUCO commonly includes natural gas utilities in its sample. Also, the Florida Public Service Commission uses a sample of natural gas utilities in its annual generic ROE estimation for water utilities.²⁰

Q. Do natural gas distribution companies have the same risks that water companies have?

²⁰ See Florida PSC Order No. PSC-11-0287-PAA-WS, Docket No. 110006-WS.

1 A. In many ways they do; weather and economic changes can affect consumption greatly,
2 their returns are based on their infrastructure and not the value of the product they
3 provide. But, natural gas distribution companies have at least one significant advantage
4 over water companies: In Arizona and I believe in most states, they have adjustor
5 mechanisms that make them whole for external changes to the cost of the gas they
6 provide – yet Arizona water companies do not have power supply adjustors even though
7 pumping water and wastewater is very power-intensive and they have no control over the
8 external changes to those costs.

9
10 **C. Comparable Earnings Results.**

11 **Q. What is the realized ROE for this sample?**

12 A. Taking a weighted (by equity) average of the realized ROEs of each of the utilities in the
13 sample produces an ROE of 10.47%. See Schedule MJR 1.

14 **Q. Why is it appropriate to use a weighted average of the sample ROEs to produce the**
15 **estimate of the cost of equity?**

16 A. The utilities in the sample vary greatly in size. The smallest, York Water Co., has an
17 equity balance of \$95 million. The largest, Atmos Energy, has an equity balance of
18 \$2,255 million. Taking a simple average of returns produces a number that overstates the
19 influence of the smaller utilities in the sample. Weighting the sample ROEs by the equity
20 balance of each company produces the average return accruing to *each dollar* of equity in
21 the sample.

22
23 **VI. DCF estimation.**

24 **Q. Please describe the DCF model.**

25 A. The DCF or Discounted Cash Flow model is based on the idea that the present value of
26 an asset that pays off in the future is the discounted expected value of the future pay off.
27 This means that the price of a stock is:

$$P = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^3} + \frac{D_4}{(1+r)^4} + \dots$$

Where P is the stock price, D_1 is the dividend paid in future year one, D_2 is the dividend paid in future year two, D_3 is the dividend paid in future year three etc., $(1+r)$ is the discount rate and r is the rate of return.

Assuming that dividends grow at a constant rate of g and that the future stream of dividends is infinite allows the above equation to be rewritten as:

$$P = \frac{D_0}{(r-g)}$$

Where D_0 is the current dividend being paid.

Solving this equation for r gives the standard formulation of the DCF model:

$$r = \frac{D_0}{P} + g$$

The required rate of return equals the current dividend yield plus the expected growth rate.

While the mathematics that connect the above steps may not be intuitively obvious this basic relationship between stock price, dividend yield and the growth rate is regarded as a truism of finance.

The dividend yield of a stock is readily attainable from a variety of sources. However, the expected growth rate is not known with certainty and a proxy for it must be selected.

1 **Q. Please describe your specific formulation of the DCF model.**

2 A. Using the DCF model I calculated the required ROEs of each of the utilities in the sample
3 (this is the same sample of companies presented in the Comparable Earnings analysis
4 above.) These ROEs were then averaged to come up with a DCF ROE estimate.
5 The simple DCF formula discussed in the previous question is known as the Continuous
6 DCF model because its formulation requires the implicit assumption that dividends are
7 paid in a continuous stream throughout the year. To account for the real world
8 complication that dividends are paid out at discrete intervals I use the Annual
9 Compounding DCF model:

10
11
$$r = \frac{D_0(1 + g)}{P} + g$$

12

13 **Q. How did you calculate the dividend yield for the companies in the sample?**

14 A. For each of the sample companies I used the dividend per share for the next 12 months
15 from Value Line's April 20, 2012 Summary and Index for D_0 . And I used the spot price
16 from June 21, 2012 obtained from Google Finance for the current price. The calculation
17 of the dividend yield is shown on Schedule MJR 2. This is the same method of
18 calculating the dividend yield used by the ACC Staff in recent water utility cases.²¹
19

20 **Q. How did you calculate the expected dividend growth rate?**

21 A. I obtained analysts' projections of the sample companies' Earnings Per Share ("EPS")
22 growth rates. I then averaged these projections together to get a proxy for the expected
23 growth rate in dividends. The sources I used to obtain analysts forecasts are: Yahoo
24 Finance, Reuters, Zacks, CNN Money and Value Line. Averaging the forecasts from five
25 different sources prevents any one anomalous forecast from having substantial influence
26

27 ²¹ See W-01303A-10-0448, Arizona American rate case, Direct Testimony of Juan Manrique.

1 on the result. Schedule MJR 3 shows the calculation of the expected dividend growth
2 rate.

3
4 **Q. Why do you believe it is appropriate to use forecasts of EPS as a proxy for expected**
5 **dividend growth?**

6 A. The value g in the DCF model is defined as the *expected future* growth rate. It is not the
7 current or historical growth rate, but the growth rate investors expect to experience in the
8 future. Analysts' forecasts are the best proxy we have for the expected future growth rate
9 of a given company. Historical growth rates do provide relevant information and analysts
10 do include historical growth rates in their assessment of future growth rates. So relying
11 on forecasted growth rates does not mean that historical growth rates are ignored.

12
13 Since forecasts of dividend growth are not widely available, forecasts of earnings per
14 share growth rates are often used in the DCF model.²² The DCF model relies on the
15 implicit assumption that earnings and dividends grow at the same rate²³ so when using
16 the DCF model EPS growth rates are an appropriate proxy for dividend growth rates.

17
18 **Q. Please discuss the multi-stage DCF model.**

19 A. In addition to the annual compounding DCF model discussed above, I also developed a
20 cost of equity estimate using the multi-stage DCF model. The multi-stage DCF model
21 allows for non-constant growth rates in dividends. I have used the same formulation of
22 the multi-stage DCF that Staff has used in recent cases.²⁴

23
24
25
26 ²² Morin, Roger A, New Regulatory Finance, Public Utility Reports, Inc. 2006, at page 302.

27 ²³ Ibid, at page 258.

²⁴ See W-01303A-10-0448, Arizona American rate case, Direct Testimony of Juan Manrique.

The idea behind the multi-stage DCF is that the assumption in the standard DCF that dividends grow at a constant rate forever is thought to be unrealistic. The multi-stage DCF requires the assumption that dividends are expected to grow at one rate over the near term and at a different long run sustainable rate over the long term. The multi-stage DCF equation is:

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{D_n(1+g_n)}{r-g_n} \left[\frac{1}{(1+r)} \right]^n$$

Where: P_0 = current stock price
 D_t = dividends expected durring the initial near term period
 r = cost of equity
 n = number of years in the initial near term period
 D_n = dividends expected in year n
 g_n = constant rate of growth expected after year n

Solving the multi-stage DCF equation for r cannot be done algebraically; rather values for r must be plugged in iteratively until the value that solves the equation is reached. Schedule MJR 4 shows the derivation of the multistage DCF results.

Following Staff, I use a near term period of five years and I use the long run average of U.S. GDP growth of 6.6% as the long term growth rate, g_n .²⁵ For the short term growth rate I use the same growth rate discussed above under the annual compounding DCF model.

The multi-stage DCF model is used extensively by financial analysts and institutional investors.²⁶ Because of this widespread acceptance of the multi-stage DCF model and

²⁵ Ibid.

²⁶ Morin, New Regulatory Finance at 266.

1 because it has been employed by the Staff it seemed appropriate to include it in the DCF
2 analysis of utility costs of equity.

3
4 **Q. Both ACC Staff and RUCO use the Sustainable Growth method to develop a growth**
5 **rate for their DCF models. Why are you not proposing to use the Sustainable**
6 **Growth method?**

7 A. The Sustainable Growth (or Retention Ratio) method formulates the expected dividend
8 growth rate as:

$$g = b * r + s * v$$

9 Where: b = the expected fraction of earnings to be retained by the company

10 r = the expected return on equity

11 s = the expected growth in the company's outstanding shares

12 v = the expected fraction of sales of new stock that accrues to current
13 shareholders.

14
15 So use of the Sustainable Growth method requires the analyst to develop proxies for four
16 different expectational variables. Determining what proxies are appropriate for investors'
17 expectations of b , r , s and v is inherently more problematic than determining a proxy for
18 the single variable g .

19
20 The variable r , the expected return on equity, raises additional issues. Investors'
21 expectations about the future actual ROE will depend on their expectations regarding the
22 outcome of regulatory proceedings that set the authorized ROE. So the idea that r , the
23 expected return on equity, can be used as an input to determine the authorized ROE is
24 inherently circular. Historical actual ROEs have been used as a proxy for expected ROEs
25 but if we believe that historical actual ROEs are an appropriate proxy for expected ROEs
26 we can just use the historical actual ROEs to compute the authorized ROE directly
27

1 without the use of the DCF or any other model (which is what I did in the Comparable
2 Earnings analysis above.)

3
4 **Q. Please discuss the assumptions that the DCF model relies on.**

5 A. Like all models the DCF is a simplification of reality. In order to make financial models
6 practical for actual use simplifying assumptions must be made about the behavior and
7 beliefs of investors and company management. The following are assumptions that the
8 DCF relies on. The first four assumptions are necessary for any DCF model while the
9 last four are necessary only for constant growth DCF models.²⁷

10
11 **Assumption 1:** Investors value stocks in the classical economic framework, i.e., they
12 make investment decisions in a rational fashion based on their perception of value.

13
14 **Assumption 2:** Investors discount future dividends at the same rate ($1 +$ the cost of
15 equity) in each future period. This implies that investors assume that the yield curve is
16 flat (i.e., that interest rates on short term, intermediate term and long term debt are the
17 same.) While this assumption is unrealistic its practical implications are limited, i.e., it
18 doesn't really matter to the analysis.

19
20 **Assumption 3:** The cost of equity derived from the DCF model corresponds to the
21 specific stream of future cash flows included in the model. In other words, it is
22 dependent on the specific circumstances of the company whose data is being used in the
23 model. If investors expected the same cash flows but with a higher level of risk the
24 resulting cost of equity would not be the same. This is because the stock price will
25 decline if perceived risk increases (even if expected cash flows don't change.) In the
26

27 ²⁷ This discussion of DCF assumptions follows Morin, 2006, 251-258.

1 context of the DCF model a lower stock price results in a higher cost of equity. This
2 supports the notion that the DCF cost of equity results should be adjusted upwards to
3 account for the specific risks faced by Global (and other Arizona water utilities.)
4

5 **Assumption 4:** The source of value to investors is dividends.
6

7 **Assumption 5:** The cost of equity must be greater than the expected growth rate of
8 dividends. This means that the DCF model cannot be used for growth stocks but it is not
9 an issue for most utilities.
10

11 **Assumption 6:** The expected dividend growth rate is constant for every future year to
12 infinity. This does not mean that dividends must actually grow at the same rate every
13 year. Rather, investors are assumed to expect the growth rate to be constant. If the actual
14 growth rate varies randomly around an average expected rate this assumption is not
15 violated.
16

17 **Assumption 7:** Investors require the same return on equity in each future year. This
18 implies that the risks faced by the firm are assumed to be constant.
19

20 **Assumption 8:** There is no external financing. Dividend growth comes solely from the
21 retention of earnings.
22

23 **Q. Why can the DCF model be problematic?**

24 **A.** A significant drawback of the DCF model is that it relies on stock market prices that
25 change from day to day. Stock prices tend to fluctuate much more and more frequently
26 than do our estimates for dividends and the dividend growth rate. This means that as the
27 stock market fluctuates, the ROE estimates produced by the DCF approach will also

1 fluctuate. For instance, the annual compounding DCF ROE estimates presented here are
2 fully 10 basis points lower than those I presented for another company in testimony filed
3 less than a month ago.²⁸ However, there is absolutely no reason to believe that the risks
4 associated with operating a water utility have changed that much over such a short period
5 of time. The change is solely a result of a recent rally in the stock market and has nothing
6 to do with the realities of the Arizona water industry.

7
8 **Q. How can this problem be dealt with?**

9 A. Many practitioners have suggested dealing with this problem by using an average of
10 recent stock prices rather than the most recently available price. However, the ACC Staff
11 takes an extreme and dogmatic approach to the Efficient Markets Hypothesis and rejects
12 the averaging of recent stock prices. Rather than propose a practical solution that has
13 been repeatedly rejected by the Staff, I use the Staff's methodology and simply point out
14 that this problem is one more reason why the Comparable Earnings approach is
15 preferable to the use of financial models.

16
17 **Q. Is the problem of fluctuating stock prices only a practical problem or does it also**
18 **have theoretical implications?**

19 A. This issue raises serious theoretical questions about the use of the DCF for ROE
20 estimation. Consider the basic DCF equation:

$$P = \frac{D_0}{(r-g)}$$

21
22 This means that the price of a utility stock will only change when the dividend, the
23 expected ROE and/or the expected growth rate changes. But we know this simply isn't
24 true. Stock prices react to a variety of information not included in the DCF model such
25 as statements or actions of the Federal Reserve, economic data releases, political events,
26

27 ²⁸ See Docket W-01380A-12-0254.

1 and (recently) actions of the European Central bank and European governments regarding
2 the debt crisis in Europe. In fact, the DCF model is used by stock market professionals to
3 ascertain the underlying *value* of a company in order to determine if it is currently under
4 or overvalued by the market. In light of this it is questionable whether using the spot
5 stock market price from a given day as an *input* into the DCF model is appropriate from a
6 theoretical perspective.

7
8 **Q. What are the results of your DCF analysis?**

9 A. The results of the DCF analysis presented here are:

10

DCF Method	ROE
DCF Annual Compounding	9.06%
Multistage DCF	9.74%

12

13 **VII. CAPM estimation.**

14 **Q. Please discuss the CAPM or Capital Asset Pricing Model.**

15 A. The CAPM is quite different from the DCF model. The DCF model is a multi-period
16 model that explicitly recognizes that investment returns are paid out over time. In stark
17 contrast, the CAPM is a single period model; it is essentially an instantaneous snapshot of
18 a moment in time and thus it eschews the concept of the time value of money and of
19 discount rates. Further, while the DCF model explicitly recognizes that the cost of equity
20 depends upon firm specific factors such as a firm's dividend yield and expected dividend
21 growth rate, the CAPM assumes that investors ignore all such firm specific factors.
22 Unlike the DCF model which is grounded by the "old school" financial concept that the
23 value of an asset is the discounted sum of future cash flows,²⁹ the CAPM is based on the
24 more recent theory of Efficient Markets and Modern Portfolio Theory.³⁰

25
26 ²⁹ First advanced by Fisher (1907) and expanded on by Williams (1938.)

27 ³⁰ Markowitz (1952), Sharpe (1963) and Lintner (1965)

1 **Q. What is the basic formulation of the CAPM?**

2 A. The CAPM specifies the relationship between the cost of equity, the “risk free” rate of
3 return, beta and the market risk premium. This relationship is expressed as:

$$r = RF + \beta * (RM - RF)$$

4
5 Where: r = the cost of equity

6 RF = The “risk free” rate of return

7 β = Beta, the expected correlation between a given securities return
8 and the market rate of return.

9 RM = the market rate of return

10 $RM - RF$ = the market risk premium.

11 The risk free rate of return, RF , is the hypothetical return on the hypothetical risk free
12 asset. In reality, no asset is risk free so an appropriate proxy for the risk free rate must be
13 selected by the analyst.

14 Beta measures a given asset’s propensity to move with the “market.” A Beta of 1
15 indicates that the asset tends to move in perfect correlation with the market. A Beta of
16 0.5 indicates the asset tends to move half as much as the market.³¹

17
18 Historical betas are determined by the use of a statistical model known as regression
19 analysis that determines the correlation between a given assets’ return and the market
20 return. Historical betas are often used as a proxy for expected betas when formulating the
21 CAPM.

22
23
24
25 ³¹ I say “tends to” because Betas are determined statistically through a regression model. The
26 statistical model used to estimate Beta is:

27 $r = RF + \beta * (RM - RF) + \varepsilon$ where ε is a random error term. I.e., the CAPM does not explain all
of the variability in r .

The market rate of return, R_M , is supposed to represent the return on a hypothetical portfolio consisting of **all assets**. In theory this portfolio would consist of all conceivable asset classes: stocks, bonds, agricultural commodities, gold and other metals, art, collectables, etc. However, in practice the market portfolio is usually represented by a broad portfolio of stocks. This difference between the theoretical CAPM and how it is used in practice has been cited as one of the CAPM's fundamental drawbacks.³²

The market risk premium, $R_M - R_F$, is the difference between the market return and the risk free rate of return. It represents the additional return required to compensate investors for the risk associated with holding the market portfolio rather than the risk free asset. This factor explains why investors choose the risk inherent in the market rather than risk free investments: they expect to earn more money.

Q. How have current events made use of the CAPM problematic?

A. In 2011 both long term and intermediate term US government bonds outperformed stocks in terms of return.

2011 Returns to Various Asset Classes³³

	Capital Appreciation	Income Return	Reinvestment Return	Total Return
Large Company Stocks	0%	2.13%	-0.01%	2.11%
Long-Term US Gov. Bonds	23.74%	3.81%	0.68%	28.23%
Intermediate Term US Gov. Bonds	7.79%	1.58%	0.09%	9.46%

So the premium of large company stocks as compared to long and medium term government bonds was actually *negative* in 2011 – and not a little negative, a lot

³² Morin, New Regulatory Finance at 176.

³³ Source: Morningstar 2012 Classic Yearbook Table 2-2.

1 negative: Long-Term Government Bonds had a total return 13.38 times higher than
2 Stocks, and Intermediate Government Bonds had a total return nearly 4.5 times
3 higher than Stocks.

4
5 The premium of large company stock returns over short-term US government debt
6 (treasuries) is currently at historic lows and has been highly variable over the past several
7 years. Since 2006 this “equity risk premium” has been as high as 26.34% and as low as -
8 37.99%.

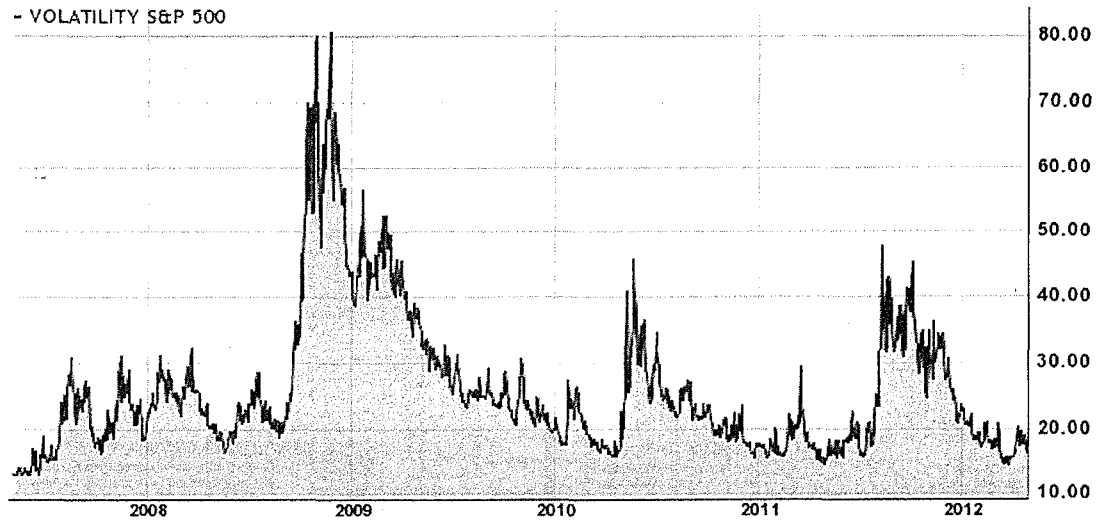
9

Year	Large Company Stock Premium to Treasuries (Equity Risk Premium) ³⁴
2006	10.49
2007	0.79
2008	-37.99
2009	26.34
2010	14.92
2011	2.07

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17 This extreme volatility was mirrored in the Chicago Board of Exchange (CBOE)
18 Volatility Index (VIX):
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27 ³⁴ Source: Morningstar 2012 Classic Yearbook Table 4-1.



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This obvious high variability in the markets and in risk premiums reflects the dramatic swings in the stock market over the past few years. In 2008 when the market crashed the risk-“premium” was highly negative. As often happens after a crash the market recovered over the next few years and so did the premium. In 2011 the stock market leveled off and the bond market did remarkably well.

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The premium of large company stock returns over the various types of US government debt is used as a proxy for the market risk premium when using the CAPM. Given that these premiums are anomalously low and subject to high degrees of variation due to the unsettled nature of current economic conditions, their use in the CAPM is problematic. A CAPM model based on the 2010 equity risk premium (14.92%) will result in a drastically different ROE than one based on 2011’s risk premium (2.07%.) But does anyone really believe that the cost of equity faced by utilities in Arizona shifted that drastically from 2010 to 2011?

25
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27

Additionally, the recent variability in the stock market has caused a “flight to safety” which, along with actions by the Federal Reserve, reduces interest rates but at the same

1 time increase total returns to bond holders. This tends to artificially depress results of the
2 CAPM since many analysts use the *interest rate* on government bonds as the proxy for
3 the risk free rate but use a market risk premium based on the difference between *total*
4 *returns* of stocks and bonds. This mismatch has resulted in remarkably low CAPM ROE
5 estimates in recent Staff and RUCO testimony.³⁵

6
7 **Q. Do you see any other issues with the CAPM?**

8 A. The assets used as inputs into the CAPM, stocks and government bonds, are highly
9 liquid. They can be easily bought and sold on short notice and offer the chance at a
10 capital gain. However, the asset class we are interested in, water utility plant, is not at all
11 liquid and has almost no chance of providing a capital gain. This significant difference in
12 the assets used as inputs into the model and actual utility assets calls into question its
13 applicability for the estimation of utility ROE.

14
15 **Q. Have others begun questioning CAPM's usefulness?**

16 A. Yes, from its inception the CAPM has been controversial. There have been many papers
17 critical of the CAPM published in the academic finance journals over the years.³⁶
18 For a more recent and accessible take on the issue of CAPM and the efficient markets
19 hypothesis that supports it I have attached a paper entitled, "*The Death of Common*
20 *Sense*" which was published by "The 300 Club". The 300 Club describes itself as a
21 group of "some of the leading global investment professionals whose mission is to raise
22 awareness of the potential impact of current market thinking and behaviors." The paper

23
24
25 ³⁵ See W-01445A-10-0517.

26 ³⁶ Brigham and Crum "On the Use of the CAPM in Public Utility Rate Cases," Financial
27 Management, Summer 1977, 7-15 and Fama and French "The Cross-section of Expected Stock
Returns," The Journal of Finance, VolXLVII, No. 2, June 1992, 427-465 are the most well know
of a plethora of academic work pointing out the CAPM's short comings.

1 explains in detail how a dogmatic adherence to the efficient markets hypothesis
2 contributed to the recent financial crisis.

3
4 Further critique of CAPM and the Efficient Markets Hypothesis can be found in
5 Harvard Economics Professor Andrei Schleiffer's book, Inefficient Markets: An
6 Introduction to Behavioral Finance. Inefficient Markets was published by Oxford
7 University Press and has been described as "An excellent academic discussion of [stock
8 mispricing] and other behavioral influences in the stock market."³⁷

9
10 **Q. How do you recommend that these problems with the CAPM be addressed?**

11 A. My primary recommendation is that the CAPM be abandoned entirely by the ACC, at
12 least under the current, unusual economic situation. Relying primarily on the comparable
13 earnings approach and using the DCF as a check would be superior to the current practice
14 of (in some cases) using the CAPM. Notably, the ACC only began routinely using the
15 CAPM in the last ten years. However, if I were to not put forth a CAPM model in this
16 testimony I may be subject to unwarranted criticism. So, in order to alleviate the problem
17 associated with current anomalous market conditions, I have developed CAPM models
18 based on long term averages.

19
20 **A. Choice of Risk Free Rate, Market Risk Premium and Betas.**

21 **Q. How has the choice of the risk free rate of return, market risk premium and Beta**
22 **been handled in recent testimony presented before the ACC?**

23 A. I have examined testimony filed by Staff, RUCO and company witnesses in the most
24 recent Arizona Water and Arizona American rate cases.³⁸ For the risk free rate of return
25 these witnesses proposed 8 different estimates ranging from 0.83% to 5.17%. For the

26 ³⁷ Jeffrey Wurgler, Yale School of Management.

27 ³⁸ Docket Nos. W-01445A-11-0310 and W-01303A-10-0448.

1 market risk premium there were 9 different estimates ranging from 4.5% to 11.9%. For
2 Beta there were 6 different estimates ranging from 0.67 to 0.76.

3
4 **Between the December 5, 2011 filing in the Arizona American case and the March**
5 **13, 2012 filing in the Arizona Water case, Staff's estimate of the "historical" risk**
6 **free rate of return declined by 50% with no change in the market risk premium.**
7 **RUCO's estimate of the risk free rate of return declined by 56% over the same**
8 **three-month period.**

9
10 This high degree of variability calls into question the validity and practical applicability
11 of the CAPM method. It also leads to the unanswerable question: How can an asset
12 whose return can decline over 50% over three months be considered to be "risk free"?

13
14 **Q. Please discuss your general approach to the CAPM?**

15 A. I have developed separate CAPM estimates based on the annual returns and market risk
16 premium to long term, medium term and short term government bonds. Morningstar
17 publishes returns accruing to these assets over various time periods. To match the typical
18 life of utility assets I use returns accruing over the past 30 years.

19
20 **Q. What proxy did you use for the risk free rate of return?**

21 A. I used the average return on long term, medium term and short term US government
22 bonds over the period January 1, 1980 to December 31, 2011 reported by Morningstar in
23 their 2012 SBBI Classic Yearbook³⁹ as the proxy for the risk free rate of return.

24
25
26
27 ³⁹ Tables C-4, C-5 and C-6

1 **Q. Why do you believe long term returns are the appropriate proxy for the risk free**
2 **rate?**

3 A. Since the CAPM is a single period model there is no theoretically "right" answer to
4 questions dealing with the choice of long term vs. short term proxies. Instead the choice
5 must depend on real world considerations. Since an investment in utility plant is a long
6 term investment, the corresponding risk free asset must also be of a long term duration.
7 The return on an asset held for a short duration is not directly comparable to a return on
8 an asset that must be held for 30 years. An equity investment in utility plant (i.e., rate
9 base) generally takes 30 years to be returned to the investor through depreciation
10 (assuming that cash flow is high enough to make approved depreciation rates
11 meaningful.) In order for the proxy risk free rate to appropriately correspond to the
12 holding period of utility assets it must have a similar holding period.

13
14 The use of short term yields doesn't correlate to the asset lives of the investments utilities
15 make. Investors decide on 30-year investments with an expectation of yields over the life
16 of the assets – Treasuries are frequently resold, utility plant is rarely resold.

17
18 **Q. Have other practitioners used long term returns as a proxy for the risk free rate?**

19 A. Yes. In recent cases both Staff and RUCO use long term total returns on government
20 debt as a proxy for the risk free rate in their calculation of the market risk premium.⁴⁰

21
22 **Q. How did you pick the betas used in your CAPM analysis?**

23 A. I used the same sample of utilities discussed in the Comparable Earnings and DCF
24 analyses above. For each of these companies I obtained Value Line's estimated beta.

25
26
27

⁴⁰ See Dockets W-01303A-10-0448 and W-01445A-11-0310.

1 The beta used in my CAPM analysis is the average of this sample of betas: 0.69. See
2 Schedule MJR 6.

3
4 **Q. Generally speaking why is it appropriate to use the average of a sample of beta**
5 **estimates instead of a single beta estimate?**

6 A. The statistical estimates of beta are just that: estimates. Like all statistical estimates they
7 are prone to estimation errors. The CAPM was developed in the context of Portfolio
8 Theory, a branch of finance concerned with optimal portfolio allocations. The statistical
9 errors of individual beta estimates of securities in a portfolio should cancel each other out
10 such that the overall portfolio beta estimate is consistent and reliable. The developers of
11 the CAPM were able to ignore the statistical error of individual beta estimates because
12 their focus was the overall beta of the portfolio, not the individual betas. Now that we are
13 using the CAPM to estimate the cost of equity for utilities (a use the CAPM was not
14 intended for when it was developed) we must be aware of the statistical error problem
15 and should use a sample of beta estimates from different firms in order to alleviate it.

16
17 **Q. How did you develop the market risk premium ($RM - RF$) used in your CAPM**
18 **analysis?**

19 A. I calculated the premium of both large and small stocks over long term US Government
20 bonds over the 1980 – 2011 period. The average return on large and small stocks over
21 the 1980 to 2011 period was taken from Morningstar's 2012 SBBI Classic Yearbook⁴¹

22
23 **Q. Why do you believe it is appropriate to include returns on small stocks in your**
24 **calculation of the market risk premium?**

25
26
27 ⁴¹ Tables C-1, C-2 and C-3.

1 A. The market return in the CAPM is the return on a hypothetical portfolio containing **all**
2 asset classes. Thus, in order to be consistent with the theoretical underpinnings of the
3 CAPM, a broad array of asset classes should be represented in the market risk premium.
4 Further, the Global Utilities are all small companies themselves and thus to be consistent
5 with the comparable earnings standard established by *Hope* and *Bluefield* small
6 companies should also be considered in determining the market risk premium.

7
8 **B. CAPM Results.**

9 **Q. Please discuss the results of your CAPM analysis.**

10 A. The above describe method yields an ROE of 10.51%. Schedule MJR 5 shows the details
11 of this calculation.

12
13 **VIII. Comparing the Global Utilities to the Sample Utilities.**

14 **Q. How do the Global Utilities compare to the sample of utilities used in the above**
15 **analyses?**

16 A. The Global Utilities are considerably smaller than the utilities in the sample and they face
17 considerably greater risk as a result of the economic, environmental, and regulatory
18 environment in Arizona. I provide further information later in this section regarding why
19 it is essential to consider firm-specific risks in determining the cost of equity.

20
21 **A. The Global Utilities are significantly smaller than the sample utilities.**

22 **Q. What evidence supports your conclusion that the Global Utilities are significantly**
23 **smaller than the sample utilities?**

24 A. I compared the 2010 annual revenue and total assets of the Global utilities to those of the
25 sample utilities. The average of the sample utilities' 2010 revenues was: \$1.6 Billion.
26 The average of the sample utilities' 2010 total asset base was: \$3.6 Billion. The Global
27 Utilities are not even close in size to the sample average.

The following table shows the 2010 value of each of the Global Utilities' assets and the difference between them and the average asset value of the sample.

Utility	2010 Total Assets	Deviation from Sample Average
Palo Verde	\$ 119,168,354	\$(3,471,495,857)
Santa Cruz	\$ 108,993,193	\$(3,481,671,018)
Valencia Water Company Town Division	\$ 60,517,366	\$(3,530,146,845)
Valencia Water Company Greater Buckeye Division	\$ 3,850,053	\$(3,586,814,158)
Willow Valley Water Company	\$ 3,817,221	\$(3,586,846,990)
Water Utility of Greater Tonopah	\$ 7,157,065	\$(3,583,507,146)
Water utility of Northern Scottsdale	\$ 1,679,620	\$(3,588,984,591)
Total	\$ 305,182,872	\$(3,285,481,339)

This table compares the Global Utilities' revenue levels to those of the sample:

Utility	2010 Total Revenue	Deviation from Sample Average Revenue
Palo Verde	\$ 7,661,153	\$(1,621,783,058)
Santa Cruz	\$ 9,684,900	\$(1,619,759,311)
Valencia Water Company Town Division	\$ 3,964,504	\$(1,625,479,707)
Valencia Water Company Greater Buckeye Division	\$ 402,828	\$(1,629,041,383)
Willow Valley Water Company	\$ 666,950	\$(1,628,777,261)
Water Utility of Greater Tonopah	\$ 213,425	\$(1,629,230,786)
Water utility of Northern Scottsdale	\$ 135,148	\$(1,629,309,063)
Total	\$ 22,728,908	\$(1,606,715,303)

1 Clearly the utilities in the sample are significantly larger than the sample utilities. In fact
2 no company in the sample is less than twice the size of Palo Verde, the largest of the
3 Global utilities.
4

5 **Q. What are the implications of Global's small size relative to the sample of utilities**
6 **used to determine the cost of equity?**

7 **A.** The small size of the Global Utilities relative to the sample utilities calls into question
8 whether the use of such a sample conforms to the "corresponding risk" standard derived
9 from the *Hope* and *Bluefield* cases. The risk profile of small firms is fundamentally
10 different from that of large firms. Small firms are widely regarded as riskier than large
11 firms. Therefore, reliance on a sample of large firms can dramatically understate the risk
12 (and the necessary cost of equity) for smaller utilities. In order to conform to *Hope* and
13 *Bluefield's* "corresponding risk" standard an upward adjustment to the cost of equity
14 derived from the sample utilities is necessary.
15

16 **Q. Why is it that small utilities are characterized by higher risk than large utilities?**

17 **A.** Lack of diversification is the primary reason why small utilities carry more risk than the
18 utilities included in the sample. The utilities in the sample (for the most part) do business
19 in multiple states and service territories. The effects of a disruption in any one service
20 territory such as the loss of a large customer, the need for emergency repairs or an
21 unfavorable regulatory decision are muted at the corporate level because they are spread
22 out across the entire operation. This is not true of the Global Utilities, their relatively
23 small size and lack of geographic scope precludes risk mitigation through diversification
24 of their operations.
25
26
27

1 **B. The Global Utilities face substantially more risk than the sample utilities.**

2 **Q. How do you support the contention that the Global Utilities face substantially more**
3 **risk than the sample utilities?**

4 A. Section II, above, demonstrates that the actual return on equity experienced by utilities in
5 Arizona is significantly below that and more variable than those in the sample. This
6 makes it indisputable that Arizona-based water utilities exhibit a higher risk profile than
7 the utilities used in the sample. For technical reasons use of a sample of utilities is
8 necessary in order to implement the traditional cost of equity estimation techniques, but
9 this does not mean that problems associated with the sample should be ignored. In order
10 to establish an authorized return on equity that appropriately addresses the difference in
11 risk between Global and the sample utilities a premium must be applied.

12
13 **Q. How do you respond to Staff's contention that premiums associated with firm-**
14 **specific risk are inappropriate because such risk can be diversified away⁴²?**

15 A. The idea that firm-specific risk factors can be ignored is a result of an extreme and
16 dogmatic adherence to the Efficient Markets Hypothesis and is not a general principle of
17 finance, nor has it been proven to work in the real world.

18
19 The CAPM's assumption that investors ignore firm-specific information such as
20 dividends is, of course, absurd. A veritable cornucopia of firm-specific data is available
21 to, and utilized by, today's investors. A whole industry is now supported by investors'
22 demand for firm-specific data. Firms such as Value Line, Reuters, Dow Jones and others
23 make their livings by providing firm-specific information to investors. It absolutely
24 defies common sense that investors would pay for this firm-specific data if they did not
25 intend to use it.

26
27 ⁴² See Docket W-01445A-11-0310.

1 The absurdity of the CAPM's assumptions does not mean it is not useful. The CAPM
2 provides a method for estimating the cost of equity. While unrealistic assumptions may
3 be appropriate for a mathematical financial model, they are not appropriate for decision
4 making in the real world. CAPM results can be used as an input when determining the
5 authorized return on equity, but the CAPM's absurdly unrealistic assumptions should not
6 be used to argue that firm-specific risk factors should be ignored entirely when
7 determining the authorized return on equity for a specific firm. In other words, the use of
8 the CAPM does not preclude adjustments to the estimated cost of equity based on real
9 world firm-specific risk factors.

10
11 In fact, adherence to the notion that firm-specific risk factors should be ignored when
12 estimating the cost of equity seems to be a clear violation of the principles laid out in the
13 *Hope* and *Bluefield* Supreme Court cases. As discussed above, the three cost of capital
14 standards established by *Hope* and *Bluefield* are: 1) commensurate earnings; 2) financial
15 integrity; and 3) capital attraction.

16
17 Ignoring firm specific risk factors violates all three of these standards.

- 18 1) The commensurate earnings standard requires that the cost of equity
19 commensurate with that of other companies *with similar risk*. **This is impossible**
20 **if the risk characteristics of the utility in questions are ignored.**
- 21 2) The financial integrity standard requires that the cost of equity be sufficient to
22 maintain the financial integrity of the utility (the actual utility, not a generic
23 utility). Again, this is impossible to assess if firm-specific factors are ignored.
- 24 3) Similarly, it is impossible to determine whether a given return on equity for a
25 specific firm is sufficient to attract capital without also considering that firm's
26 specific factors.

1 **Q. What premium do you propose because of the risk factors that affect Arizona**
2 **utilities?**

3 A. Unfortunately, there is no accepted method for determining an appropriate rate of return
4 premium to apply in instances such as this. However, a look at long term stock returns
5 offers some guidance. Morningstar calculates and reports returns over various time
6 periods for several different asset classes. Comparing returns on small stocks to those on
7 large stocks over the period from 1926 through 2010 reveals that small stocks on average
8 have returns 480 basis points higher than large stocks.⁴³ Given this large return premium
9 that accrues to small companies in general, it is not unreasonable to suggest a similar
10 premium to account for: (1) the extreme difference in size between the Global utilities
11 and the sample utilities; as well as (2) the difference in risk characteristics of Arizona
12 utilities compared to the sample utilities (discussed above.) However, in the interest
13 keeping the rate increase requested in this case moderate Global is requesting a premium
14 of only 120 basis points to account for these risk factors.

15
16 **IX. Cost of Equity Summary.**

17 **Q. Please summarize your recommendation regarding ROE.**

18 A. To develop the recommended ROE I have used the weighted average of two different
19 DCF models, 3 different CAPM models, and a comparable earnings analysis and
20 developed justification for a 120 basis point premium. I believe the comparable earnings
21 approach has more value than either the DCF or CAPM and thus I weight it more heavily
22 in the recommendation. The comparable earnings result is weighted 2/3rds and the DCF
23 and CAPM results are given a weight of 1/3. I then apply a 120 basis point premium as
24 discussed above. This produces a recommended ROE of 11.44%. This process is
25 summarized in the following table:

26
27 ⁴³ Morningstar June 2011 SBBI Market Report, Table 5.

DCF Annual Compounding	9.06%
Multistage DCF	9.74%
CAPM	10.51%
Average of Models	9.77%
Comp Earnings	10.47%
Weighted Average (1/3 models, 2/3 Comp Earnings)	10.24%
Arizona Risk Premium	1.2%
Recommended ROE	11.44%

X. Capital Structure and cost of debt of the Global Utilities.

A. Capital Structure.

Q. Please discuss the capital structures of the Global Utilities.

A. Neither Palo Verde nor Santa Cruz carry any debt on their books. However, as was discussed extensively in the 2009 Global rate case, Global Parent issued Industrial Development Authority ("IDA") bonds to fund capital investments in Palo Verde and Santa Cruz. In the 2009 rate case Global proposed that the IDA bonds be imputed to Palo Verde and Santa Cruz for the purpose of establishing a capital structure to use in the ratemaking process. This proposed imputation was accepted by all parties in the 2009 rate case and was approved by the Commission. In the current rate case Global is again proposing the same imputation of the IDA bonds to Palo Verde and Santa Cruz for ratemaking purposes.

With the exception of the Water Utility of North Scottsdale ("WUNS") which also carries no debt, the other Global utilities involved in this rate case are carrying some amount of WIFA debt at the utility level. Global is proposing to use the actual capital structures of Valencia Water Company ("VWC"), Water Utility of Greater Buckeye ("WUGB"), Willow Valley Water Company ("WVWC"), Water Utility of Greater Tonopah ("WUGT") and WUNS for ratemaking purposes.

1 **Q. Please provide further details regarding the IDA bonds discussed above?**

2 A. From 2006 through 2008 Global Parent acquired a total of \$115,180,000 in bond
3 financing from the Industrial Development Authority of Pima County. These "IDA
4 bonds" were issued in three series: 2006, 2007 and 2008. At the time each series of
5 bonds was issued specific projects were identified by Global Parent as being funded by
6 the bond issuance. These projects were all capital expansions and improvements to Santa
7 Cruz's water system and Palo Verde's wastewater and recycled water systems. Schedule
8 MJR 7 provides the detail of these projects by series. The Global Utilities have agreed to
9 impute this IDA bond debt into the capital structures of Palo Verde and Santa Cruz for
10 the purposes of this rate case. The imputation method used here is exactly the same as
11 that used, and accepted by all parties, in the 2009 rate case.

12
13 **Q. Is it typical for IDA bond proceeds to be allocated to specific projects?**

14 A. Yes. IDA bonds are issued pursuant to A.R.S. §§ 35-701 thru 35-761. This legislation
15 calls for the identification of specific projects to be funded by the IDA bonds.

16
17 **Q. How do you propose to allocate the IDA bond debt between the capital structures of
18 Palo Verde and Santa Cruz?**

19 A. As stated above, at the time the IDA bonds were issued their proceeds were allocated to
20 specific capital improvement projects. I believe a fair way to allocate the debt between
21 Palo Verde and Santa Cruz is to divide the value of the total IDA bonds outstanding
22 based on the relative value of the Palo Verde and Santa Cruz capital projects identified at
23 the time the IDA bonds were issued. Using this method I have determined that 55% of
24 the IDA bond debt should be allocated to Palo Verde and 45% should be allocated to
25 Santa Cruz. This is the same method used, and accepted by all parties, to allocate the
26 IDA bond proceeds in Global's 2009 rate case. Schedule MJR 8 details how these
27 percentages were calculated.

1 **Q. Given these allocations, what capital structures do you recommend for Palo Verde**
2 **and Santa Cruz?**

3 A. As of the end of the test year there was \$115,180,000 in IDA bonds outstanding.
4 Dividing that between Palo Verde and Santa Cruz using the above percentages results in
5 the following debt levels for the two companies:

	Allocation Percent	Total Debt	Allocated Debt
Palo Verde	55%	\$115,180,000	\$63,529,266
Santa Cruz	45%		\$51,650,734

6
7
8
9
10 Combining the above allocated debt numbers with the companies' end of year 2011
11 equity balances results in the following capital structures:

	Debt	Equity
Palo Verde	51.7%	48.3%
Santa Cruz	54.5%	45.5%

12
13
14
15
16
17
18 **Q. Please summarize your recommendations regarding the capital structures of the**
19 **Global utilities.**

20 A. The proposed capital structures for the Global Utilities are provided in the following
21 chart:
22
23
24
25
26
27

Utility	Debt	Equity
Palo Verde	51.7%	48.3%
Santa Cruz	54.5%	45.5%
Valencia – Town Division	21.3%	78.7%%
WUGT	86%	14%
Valencia – Greater Buckeye	5.1%	94.9%
West Valley - Consolidated ⁴⁴	22.41%	77.59%
Willow Valley	12.5%	87.5%
WUNS	0%	100%

Q. What capital structure do you recommend for WUGT?

A. WUGT currently has a negative equity balance as a result of the massive imputation of CIAC ordered in the last Global rate case. A negative equity balance cannot be used to develop a capital structure for ratemaking purposes. To develop a pro-forma capital structure for WUGT I started with its equity balance just prior to the ICFA CIAC imputation (\$26,693,423.) I reduced this number by the amount of the goodwill write-down necessitated by the CIAC imputation (\$23,984,905.) While de-imputing the ICFA CIAC will reinstate WUGT's rate base and lead to a better equity position, goodwill cannot be "written back up," once it is gone it is gone forever. This produces an equity value of \$2,708,518. This results in the above capital structures for WUGT.

⁴⁴ Includes Valencia Water Company - Town Division, Valencia Water Company - Greater Buckeye Division and Water Utility of Greater Tonopah.

1 **B. Cost of Debt.**

2 **Q. What is the cost of debt associated with the IDA bonds?**

3 A. Each series of IDA bonds has a different interest rate. To allocate the interest cost to Palo
4 Verde and Santa Cruz, I used the allocation method discussed above to derive a cost of
5 debt of 6.36% for Palo Verde and 6.58% for Santa Cruz. See Schedule MJR 9 for
6 derivation of these debt costs.

7
8 **Q. What is the cost of debt for the other Global Utilities?**

9 A. The cost of debt for the other Global Utilities is as follows:

10

11	Valencia - Town Division:	7.25%
12	Valencia - Greater Buckeye:	4.297%
13	WUGT:	6.32%
14	West Valley Consolidated:	7.12%
15	Willow Valley:	4.72%

16 Schedule MJR 10 shows the development of these debt costs.

17 **XI. Weighted Average Cost of Capital.**

18 **Q. What is the weighted average cost of capital ("WACC"?)**

19 A. The WACC is a cost of capital for the whole firm that is derived by weighting the cost of
20 capital associated with each source of capital (debt and equity) by its share in the firm's
21 overall capital structure. For example, suppose a firm has a capital structure consisting of
22 50% debt and 50% equity, a cost of debt of 5% and a cost of equity of 10%. Its WACC
23 is:

24 $(\text{Cost of Debt} \times \text{Debt \% of Capital Structure}) + (\text{Cost of Equity} \times \text{Equity \% of Capital Structure})$

25 $(5\% \times 50\%) + (10\% \times 50\%) = 7.5\%$

1 Q. What WACC are you recommending for each of the Global Utilities?

2 A. The WACC I am recommending for each of the Global Utilities are listed below:

	WACC
Palo Verde	8.81%
Santa Cruz	8.79%
Valencia Water Company Town Division	10.54%
Valencia Water Company Greater Buckeye Division	11.07%
Willow Valley Water Company	10.60%
Water Utility of Greater Tonopah	10.72%
Water utility of Northern Scottsdale	11.44%
Consolidated West Valley	10.17%

15 Q. Does this conclude your Direct Testimony?

16 A. Yes.

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Schedules to Direct Testimony

Of

Matthew J. Rowell

Schedule MJR 1: Calculation of Comparable Earnings ROE

Company		Net Income (millions)	Equity (millions)	ROE	Equity Weight	Weighted ROE
American States	AWR	45.86	408.67	11.22%	0.03619	0.00406
Aqua American	WTR	143.07	1251.31	11.43%	0.11080	0.01267
California Water	CWT	37.71	449.83	8.38%	0.03983	0.00334
Connecticut Water	CTWS	11.3	118.96	9.50%	0.01053	0.00100
Middlesex Water	MSEX	13.45	180.33	7.46%	0.01597	0.00119
SJW Corp	SJW	20.88	264	7.91%	0.02338	0.00185
York Water Co.,	YORW	9.08	95.27	9.53%	0.00844	0.00080
Atmos Energy Corp	ATO	207.6	2255.42	9.20%	0.19971	0.01838
Laclede Group, inc.	LG	63.83	573.33	11.13%	0.05077	0.00565
New jersey Resources Corporation	NJR	101.3	776.26	13.05%	0.06874	0.00897
Northwest Natural Gas Co.	NWN	63.9	714.49	8.94%	0.06327	0.00566
Piedmont Natural Gas Company	PNY	113.57	996.92	11.39%	0.08827	0.01006
UGI CORP	UGI	232.9	1977.7	11.78%	0.17512	0.02062
WGL Holdings, inc	WGL	118.37	1230.89	9.62%	0.10899	0.01048
						10.47%

Schedule MJR 2: Dividend Yield Calculation

		4/20/2012	6/21/2012	Dividend
		Do current	Spot Price	Yield
American States	AWR	1.16	37.92	3.06%
Aqua American	WTR	0.67	24.02	2.79%
California Water	CWT	0.64	17.7	3.62%
Connecticut Water	CTWS	0.94	27.33	3.44%
Middlesex Water	MSEX	0.74	18.21	4.06%
SJW Corp	SJW	0.74	23.09	3.20%
York Water Co.	YORW	0.53	17.15	3.09%
Artesian Res. Corp.	ARTNA	0.76	19.51	3.90%
Atmos Energy Corp	ATO	1.38	33.76	4.09%
Laclede Group, inc.	LG	1.65	38.6	4.27%
New Jersey Resources Corporation	NJR	1.52	42.5	3.58%
Northwest Natural Gas Co.	NWN	1.78	47.52	3.75%
Piedmont Natural Gas Company	PNY	1.19	31.49	3.78%
UGI CORP	UGI	1.06	28.59	3.71%
WGL Holdings, inc	WGL	1.59	39.79	4.00%
* Value line Estimated Div next 12 months				

Schedule MJR 3: Calculation of Expected Dividend Growth Rate

		5/25/2012	5/25/2012	5/25/2012	5/25/2012	Value Line ^{*,†}	Average
		Yahoo Finance [*]	Reuters [*]	Zacks [*]	CNN Money		
American States	AWR	5.70%	7.57%	12.00%	4.00%	6.50%	7.15%
Aqua American	WTR	6.73%	7.48%	8.30%	7.00%	8.50%	7.60%
California Water	CWT	7.40%	7.40%	0.00%	8.05%	6.00%	7.21%
Connecticut Water	CTWS	6.10%	7.05%	0.00%	3.00%	0.00%	5.38%
Middlesex Water	MSEX	2.70%	-1.15%	No Data	0.60%	5.50%	2.93%
SIW Corp	SIW	14.00%	14.00%	No Data	12.60%	7.00%	11.90%
York Water Co.	YORW	4.90%	5.63%	No Data	6.00%	0.00%	5.51%
Artesian Res. Corp.	ARTNA	4.40%	4.93%	No Data	5.10%	-17.00%	4.81%
Atmos Energy Corp	ATO	4.37%	5.37%	4.80%	5.45%	4.00%	4.80%
Laclede Group, Inc.	LG	5.30%	5.15%	3.50%	3.50%	2.00%	3.89%
New jersey Resources Corporation	NJR	2.47%	3.10%	3.80%	1.65%	5.50%	3.30%
Northwest Natural Gas Co.	NWN	3.25%	4.17%	4.30%	3.75%	4.00%	4.87%
Piedmont Natural Gas Company	PNV	4.55%	4.55%	4.70%	5.10%	2.50%	4.28%
UGI CORP	UGI	0.20%	0.20%	No Data	0.20%	4.50%	1.28%
WGL Holdings, inc	WGL	4.60%	4.60%	4.90%	2.10%	3.00%	3.84%
		5.11%	5.34%	4.63%	4.54%	2.80%	5.25%

^{*} Projected annual growth over next five years.

[†] Water: 4/20/2012, Gas: 3/9/2012.

Schedule MJR 4: Multistage DCF

$$P_0 = \text{sum } D_t/(1+k)^t + D_n(1 + g_n)/(k - g_n) * [1/(1 + k)]^n$$

	Do current	Spot Price	K	Near Term Growth Rate	D1/(1+k)	D2/(1+k) ²	D3/(1+k) ³	D4/(1+k) ⁴	D5/(1+k) ⁵	sum D _t /(1+k) ^t	g _n	D _n	D _n (1 + g _n)/(k - g _n) * [1/(1 + k)] ⁿ	Multistag e DCF
AWR	1.16	37.92	9.53%	7.15%	0.030	0.029	0.029	0.028	0.027	0.143	6.6%	1.64	37.78	37.92
WTR	0.67	24.02	9.36%	7.60%	0.027	0.027	0.027	0.026	0.026	0.133	6.6%	0.97	23.89	24.02
CWT	0.64	17.7	10.02%	7.21%	0.035	0.034	0.033	0.033	0.032	0.167	6.6%	0.91	17.53	17.70
CTWS	0.94	27.33	9.63%	5.38%	0.033	0.032	0.031	0.029	0.028	0.153	6.6%	1.22	27.18	27.33
MSEX	0.74	18.21	9.77%	2.93%	0.038	0.036	0.034	0.031	0.029	0.168	6.6%	0.86	18.04	18.21
SIW	0.74	23.09	10.30%	11.90%	0.033	0.033	0.033	0.034	0.034	0.167	6.6%	1.30	22.92	23.09
YORW	0.53	17.15	9.37%	5.51%	0.030	0.029	0.028	0.027	0.026	0.139	6.6%	0.69	17.01	17.15
ARTNA	0.76	19.51	9.90%	4.81%	0.037	0.035	0.034	0.032	0.031	0.169	6.6%	0.96	19.34	19.51
ATO	1.38	33.76	10.03%	4.80%	0.039	0.037	0.035	0.034	0.032	0.177	6.6%	1.74	33.58	33.76
LG	1.65	38.6	10.03%	3.89%	0.040	0.038	0.036	0.034	0.032	0.180	6.6%	2.00	38.42	38.60
NIR	1.52	42.5	9.46%	3.30%	0.034	0.032	0.030	0.028	0.027	0.151	6.6%	1.79	42.35	42.50
NWN	1.78	47.52	9.79%	4.87%	0.036	0.034	0.033	0.031	0.030	0.164	6.6%	2.26	47.36	47.52
PNY	1.19	31.49	9.74%	4.28%	0.036	0.034	0.032	0.031	0.029	0.163	6.6%	1.47	31.33	31.49
UGI	1.06	28.59	9.31%	1.28%	0.034	0.032	0.029	0.027	0.025	0.148	6.6%	1.13	28.44	28.59
WGL	1.59	39.79	9.83%	3.84%	0.038	0.036	0.034	0.032	0.030	0.169	6.6%	1.92	39.62	39.79
			9.74%											

Solved with Microsoft Excel's "Goal Seek" function.

Schedule MJR 5: CAPM

Morningstar Reported Returns*		Premium Over Gov bonds		
1/1/80 to 12/30/11		Long Term	Medium Term	Short Term
Large Co Stocks	11.10%	0.90%	2.7%	6%
Small Co Stocks	12.30%	2.10%	3.9%	7.2%
Long Term Gov Bonds	10.20%			
Medium Term Gov Bonds	8.40%			
US Treasury Bills	5.10%			

* 2012 Classic Yearbook Table C-1 - C-6

CAPM Long Term Gov Bonds

RF **Beta** **MRP** **ROE**
 10.20% + 0.688 * 1.50% = 11.23% MRP = average of .9 and 2.1

CAPM Medium Term Gov Bonds

RF **Beta** **MRP** **ROE**
 8.40% + 0.688 * 3.30% = 10.67% MRP = average of 2.7 and 3.9

CAPM Long Term Gov Bonds

RF **Beta** **MRP** **ROE**
 10.20% + 0.688 * 1.50% = 11.23% MRP = average of 6 and 7.2

Average ROE = 10.51%

Schedule MJR 6: Beta

		Beta*
American States	AWR	0.7
Aqua American	WTR	0.65
California Water	CWT	0.65
Connecticut Water	CTWS	0.8
Middlesex Water	MSEX	0.7
SJW Corp	SJW	0.85
York Water Co.	YORW	0.7
Artesian Res. Corp.	ARTNA	0.6
AGL Resources, inc.	AGL	0.75
Atmos Energy Corp	ATO	0.7
Laclede Group, inc.	LG	0.6
New jersey Resources Corporation	NJR	0.65
Northwest Natural Gas Co.	NWN	0.6
Piedmont Natural Gas Company	PNY	0.7
UGI CORP	UGI	0.7
WGL Holdings, inc	WGL	0.65
AVERAGE		0.688

*Value Line.

Schedule MJR 7: Allocation of IDA Bonds

Series 2006					
Amount of Issuance					
\$					
36,495,000					
Capital Improvements	post 8/22/04	2005	2006(q1-q3)	Total	
Palo Verde WW	\$	\$	\$	\$	74
	4,449,676	17,494,064	4,487,532	26,431,272	%
Santa Cruz Water	\$	\$	\$	\$	26
	1,210,702	3,798,900	4,264,051	9,273,653	%
Total	\$	\$	\$	\$	
	5,660,378	21,292,964	8,751,583	35,704,925	
Source: December 1, 2006 Loan Agreement between The Industrial Development Authority of the County of Pima, U.S. bank National Association and Global Water Resources. (Exhibits B and C from 2009 rate case.)					
Series 2007					
Amount of Issuance					
\$					
54,135,000					
Capital Improvements	2006 (q4)	2007 (q1-q3)	2007 (q4) projected	Total	
Palo Verde WW	\$	\$	\$	\$	44
	8,593,426	12,681,197	1,825,000	23,099,623	%
Santa Cruz Water	\$	\$	\$	\$	56
	5,949,221	20,240,869	3,675,000	29,865,090	%
Total	\$	\$	\$	\$	
	14,542,647	32,922,066	5,500,000	52,964,713	
Source: November 1, 2007 First Amendment to above December 1, 2006 Loan Agreement (Exhibits B and C from 2009 Rate Case.)					
Series 2008					
Amount of Issuance					
\$					
24,550,000					
Capital Improvements	2007 (q4)	YTD 2008	Projected	Total	
Palo Verde WW	\$	\$	\$	\$	53
	696,882	3,602,102	10,500,000	14,798,984	%
Santa Cruz Water	\$	\$	\$	\$	47
	2,969,390	3,888,812	6,500,000	13,358,202	%
Total	\$	\$	\$	\$	
	3,666,272	7,490,914	17,000,000	28,157,186	
Source: August 1, 2008. Second Amendment to above December 1, 2006 Loan Agreement (Exhibits B and C from 2009 rate case).					

Schedule MJR 8: Allocation of IDA Bonds between Palo Verde and Santa Cruz's Capital Structures

Series 2006			
	Allocation Percent	Current Balance	Allocated Debt
Palo Verde	74%	\$35,045,000	\$25,942,750
Santa Cruz	26%		\$9,102,250
Series 2007			
	Allocation Percent	Current Balance	Allocated Debt
Palo Verde	44%	53,198,077	\$23,201,401
Santa Cruz	56%		\$29,996,676
Series 2008			
	Allocation Percent	Current Balance	Allocated Debt
Palo Verde	53%	24,550,000	\$12,903,103
Santa Cruz	47%		\$11,646,897
Total Palo Verde Debt		\$62,047,253	55%
Total Santa Cruz Debt		\$50,745,824	45%
Total IDA Debt		\$112,793,077	

Schedule MJR 9: Derivation of IDA Debt Costs

Palo Verde						
Series	Allocation Factor	Bond Due Date	Amount	Interest Rate	Weighted Debt	Weighted Interest Rate
2006	74%	12/1/2017	\$4,041,872	5.45%	6.51%	0.36%
2006	74%	12/1/2022	\$4,600,776	5.60%	7.41%	0.42%
2006	74%	12/1/2032	\$17,300,102	5.75%	27.88%	1.60%
2007	44%	12/1/2013	\$488,468	5.50%	0.79%	0.04%
2007	44%	12/1/2037	\$22,712,932	6.55%	36.61%	2.40%
2008	53%	12/1/2018	\$691,144	6.38%	1.11%	0.07%
2008	53%	12/1/2038	\$12,211,959	7.50%	19.68%	1.48%
Total			\$62,047,253		100%	6.36%
Santa Cruz						
Series	Allocation Factor	Bond Due Date	Amount	Interest Rate	Weighted Debt	Weighted Interest Rate
2006	26%	12/1/2017	\$1,418,128	5.45%	2.79%	0.15%
2006	26%	12/1/2022	\$1,614,224	5.60%	3.18%	0.18%
2006	26%	12/1/2032	\$6,069,898	5.75%	11.96%	0.69%
2007	56%	12/1/2013	\$631,532	5.50%	1.24%	0.07%
2007	56%	12/1/2037	\$29,365,145	6.55%	57.87%	3.79%
2008	47%	12/1/2018	\$623,856	6.38%	1.23%	0.08%
2008	47%	12/1/2038	\$11,023,041	7.50%	21.72%	1.63%
Total			\$50,745,824		100.00%	6.58%

Schedule MJR 10: Derivation of Costs of Debt

Willow Valley	Debt Amount	Interest Rate	Weighted Interest Rate
6.125% WIFA 920010-98, maturing September 2018	105,657	6.125%	0.015519
4.375% WIFA 920078-03, maturing December 2022	69,349	4.375%	0.007276
4.200% WIFA 92A179-10, maturing November 2029	242,003	4.200%	0.024374
Total Willow Valley	417,008		4.717%
Valencia	Debt Amount	Interest Rate	Weighted Interest Rate
5.810% WIFA 920024-99, maturing June 2019	33,130	5.810%	0.00056
6.750% WIFA 920102-06, maturing June 2026	2,005,400	6.750%	0.039385
4.200% WIFA 92A170-10, maturing September 2029	1,398,434	8.000%	0.03255
Total Valencia	3,436,964		7.250%
Buckeye	Debt Amount	Interest Rate	Weighted Interest Rate
4.688% WIFA 920072-03, maturing November 2022	36,033	4.688%	0.012551
6.650% WIFA 920103-06, maturing October 2026	81,385	6.650%	0.040213
8.000% Garcia loan, maturing January 2015	17,168	8.000%	0.010205
Total Buckeye	134,586		6.297%
WUGT	Debt Amount	Interest Rate	Weighted Interest Rate
6.650% WIFA 920104-06, maturing November 2026	376,889	6.650%	0.056834
4.375% WIFA 920071-03, maturing November 2022	64,100	4.375%	0.006359
Total WUGT	440,989		6.319%

Schedule MJR 10 Continued: Derivation of West Valley Consolidated Cost of Debt

	Debt	Debt Weight	Debt Cost	Weighted Debt
Valencia	\$3,436,964	0.85656	7.250%	0.062096
Buckeye	\$134,586	0.03354	6.297%	0.002112
WUGT	\$440,989	0.10990	6.319%	0.006945
Total	\$4,012,539			7.12%

Schedule MJR 11: Derivation of Weighted Average Cost of Capital

	Equity %		COE		Debt%		COD		WACC
Palo Verde	48%	*	11.44%	+	52%	*	6.36 %	=	8.81%
Santa Cruz	45%	*	11.44%	+	55%	*	6.58 %	=	8.79%
Valencia Water Company Town Division	79%	*	11.44%	+	21%	*	7.25 %	=	10.55%
Valencia Water Company Greater Buckeye Division	95%	*	11.44%	+	5%	*	4.30 %	=	11.07%
Willow Valley Water Company	87%	*	11.44%	+	13%	*	4.72 %	=	10.60%
Water Utility of Greater Tonopah	86%	*	11.44%	+	14%	*	6.32 %	=	10.72%
Water utility of Northern Scottsdale	100%	*	11.44%	+	0%	*	0.00 %	=	11.44%
Consolidated West Valley	77.59%	*	11.44%	+	22.41 %	*	7.12 %	=	10.17%

ATTACHMENT

"1"

Matthew Rowell

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Professional History

- **Desert Mountain Analytical Services, PLLC (DMAS) 2007 – Present**
Managing Member

DMAS is a small consulting firm specializing in utility finance, ratemaking and other regulatory issues. DMAS' clients range in size from large multinational corporations to small rural utilities.

- **Arizona Corporation Commission 1996 to 2007**

Chief Economist (July 2001 to February 2007)

Analyzed and produced testimony or staff reports on a wide variety of utility issues.
Supervised a staff of nine professionals with similar responsibilities.

Economist (October 1996 to July 2001)

Analyzed and produced testimony or staff reports on a wide variety of utility issues.

- **Arizona State University, Tempe, AZ 1992-1996.**

Lecturer-economics 1994-1996

Responsible for teaching economics classes requiring the creation of lectures and tests and assigning grades.

Teaching assistant 1992-1994

Responsible for assisting professors in administering tests, grading, and teaching.

Education

- **Master of Science and ABD Economics, 1995, Arizona State University.**
Successfully completed all course work and exams necessary for a Ph.D. Course work included an emphasis in industrial organization and extensive experience with statistical analysis, public sector economics, and financial economics.
- **Bachelor of Science Economics, 1992, Florida State University.**
Minors: Philosophy, Statistics.

Certifications

Certified Rate of Return Analyst designation awarded by the Society of Utility and Regulatory Financial Analysts based on experience and successful completion of a written examination.

List of Specific Projects

Ray Water Company, Inc.

Provided expert testimony regarding Ray Water Company's cost of capital, Docket No. W-01380A-12-0254.

Global Water

Provided expert testimony regarding Global's financial viability and regulatory status before an arbitration panel. American Arbitration Association Case Nos. 76 198 Y 0104 11JMLE and 76 198 Y 0105 11 JMLE.

Provided strategic advice and analysis to Global re the ACC's ongoing water workshops.

Rate case testimony: Cost of Capital, Rate Consolidation, treatment of Infrastructure Coordination and Finance Agreements, Docket No. W-20446A-09-0080.

Prepared and sponsored testimony on Global's Notice of Intent to Restructure, Docket No. W-20446A-08-0247.

Provided strategic guidance regarding the Arizona Water complaint against Global, Docket No. W-01445A-06-0200.

EPCOR Utilities, Inc.

Provided strategic advice on the Arizona regulatory environment as it relates to EPCOR's purchase of Arizona utilities.

Rio Rico Properties

Testimony in the Rio Rico Utilities rate case, Docket No. WS-02676A-09-0257.

Residential Utility Consumer Office

Testimony re affiliate relations in the Litchfield Park Service Company Rate Case, Docket No. SW-01428A-09-0103.

Other

Assisted with financial analysis, rate design and other rate case testimony and schedules for East Slope, Antelope Run, Indiada, Southland, Valle Verde and other small water companies.

ACC Staff

APS Rate Case E-01345A-05-0816: Provided testimony on staff's position on APS' proposed Environmental Improvement Charge. Also acted as the overall case manager and was responsible for coordinating all of staff's testimony.

APS Application to acquire a power plant in the Yuma area E-01345A-06-0464: Provided testimony detailing Staff's position on the application.

Southern California Edison's application to build a high voltage power line linking Arizona to Southern California L-00000A-06-0295-00130: Provided testimony detailing the potential economic effects of SCE's proposed power line.

Accipiter's complaint against Cox Communications regarding the Vistancia development T-03471A-05-0064: Provided testimony regarding Accipiter's allegations concerning Cox's dealings with the developers of Vistancia.

Managed Staff's case (including negotiating a settlement agreement) in APS' 2003 rate case.

Negotiated (along with other Staff members) the settlement between staff and Qwest regarding three enforcement dockets.

Supervised the "independent monitor" of APS' and Tucson Electric Power's wholesale power procurement.

Provided testimony on Qwest's noncompliance with the Commission's wholesale rate order.

Managed Staff's case regarding Qwest's alleged noncompliance with the Federal Telecommunications Act.

Staff's lead witness in the Commission's reevaluation of the electric competition rules which resulted in the suspension of APS' and TEP's obligation to divest their generation assets.

Supervised the testing of Qwest's operational support systems (OSS) and the development of Qwest's Performance Assurance Plan as part of Qwest's compliance with Section 271 of the Federal Telecommunications Act.

Provided testimony on the geographic de-averaging of Qwest's Unbundled Network Element prices.

Acted as Chairman of the Commission's Water Task Force.

Attachment

"2"



The Death of Common Sense: How elegant theories contributed to the 2008 market collapse



Prof. Amin Rajan
CEO, CREATE-Research
amin.rajan@create-research.co.uk

Views expressed here are those of the author, who is solely responsible for any errors and omissions.

1. Scene setting

The 300 Club believes that modern portfolio theory and practice are failing institutional investors at a time when their depressed funding levels and high covenant risks require smarter ways of investing.

Investor confidence is now at its lowest ebb in living memory. The scale of the losses inflicted by the Lehman collapse in 2008 and the sovereign debt crisis in 2011 are immediate causes, but confidence had been eroding over the last decade.

First and foremost, the buy-and-hold strategy was not working, as equities were outperformed by bonds over a long period; second, nor was the barbell approach, as actual returns diverged markedly from expected returns for most asset classes; third, nor was diversification, as excessive leverage ramped up the correlation between historically lowly correlated asset classes.

These fault lines gave investing poor press after the unprecedented scale and speed of sell-offs in 2008. The prevailing doom and gloom caused a herd-like rush into passive funds, as armchair pundits projected the here-and-now into the future. Rational debate was conspicuous by its absence. It is time for a sombre stock-take.

The 300 Club aims to up the ante by delivering dispassionate analyses of the problems that our industry faces, and the actions that it needs to take. Accordingly, this is the first paper in a new series. It sets the scene for the subsequent papers.

It aims to:

- Describe the modern portfolio theory which has profoundly influenced the thinking of successive generations of investors and policy makers since the 1960s
- Review the empirical evidence produced by independent experts to assess how modern portfolio theory has stood the test of time
- Assess the role that modern portfolio theory played in the great financial crash of 2008
- Highlight the subject areas that need to be addressed, if a vibrant investment industry is to emerge from the ashes of the recent meltdown.

Our narrative starts with Harry Markowitz, the pioneer of modern portfolio theory. His famous paper on portfolio selection was a game changer [Markowitz, 1952]. Till then, there was no cogent theory of investment: only rules of thumb and folklore. Investors of 1952 thought the same thoughts and talked the same language as investors a century previously.

Content:

1. Scene setting	1
2. How it all began	2
3. A dangerous comfort blanket	4
4. A bullet dodged	7
5. The moment of reckoning	9
6. What's all this got to do with efficient markets?	11
7. What next?	13

Markowitz was the first to make risk the centrepiece of portfolio management. The novelty of his approach was summed up by his famous insight:

"Investing is a bet on an unknown future... you have to think about risk as well as return".

He thus inspired the intellectual origin of the two concepts that have since dominated the burgeoning literature on portfolio theory as we know it today: the capital asset pricing model (CAPM) and the efficient markets hypothesis (EMH).

In the CAPM, an investor selects a portfolio at a given time t which produces a return at time $t+1$. The model assumes that investors are risk averse. When selecting their portfolios, they care only about the mean and variance of their one-period investment return. The model is also called the mean-variance model since investors seek to minimise the variance of portfolio return, given expected return; and maximise the expected return, given variance.

Before long, two other related concepts were invented in the investment landscape: efficient markets and active management. It was argued that by factoring in all known information into prevailing stock prices, an efficient market bears out all the predictions of the CAPM. Thus, based on *a priori* reasoning, this argument also inferred that active management adds no value: in an efficient market nobody has an information advantage.

The edifice of modern financial theory is mainly constructed around CAPM and the EMH. We review the evidence on each in order to show how they contributed to the current financial crisis.

Our review is deliberately detailed: it aims to show how the evolution of the theory over time has side-tracked into trivia and inadvertently missed the big picture of how the financial markets really work.

2. How it all began

The CAPM originated from the work of the Nobel Laureate William Sharpe [1970]. He advanced the idea that each investment contains two distinct risks:

- **Systemic risks:** as the name implies, these are all-pervasive market risks that cannot be diversified away. They affect investor sentiment directly and market volatility indirectly. Interest rates, recessions, inflation and wars are examples of factors that affect the price of all securities, notwithstanding their business fundamentals. Diversification is no answer to systemic risks that affect all assets indiscriminately.
- **Idiosyncratic risks:** these risks, in contrast, are specific to individual stock and can be diversified away as an investor increases the number of stocks in his/her portfolio. As the name implies, it represents the component of a stock's return that is uncorrelated with general market movements. The only reason why an investor should earn more, on average, by investing in one stock rather than another is that one is riskier than the other.

The CAPM's starting point is the *risk-free rate* – typically a yield on a government bond: it is the minimum return that investors expect. However, it goes on to argue that investors in equities also demand an added premium to compensate them for taking the extra risk. This risk premium is derived by calculating the expected return from the market as a whole *less* the risk-free rate.

On this argument, much of the variation in expected return comes from market movements as a whole: idiosyncratic risks are negligible. Therefore, by implication, active management cannot add value. It is just noise.

In the academic world, CAPM rode high for the best part of two decades with early tests creating a consensus that the model is a good description of the expected returns. Coupled with the model's simplicity and intuitive appeal, these tests pushed the CAPM to the forefront of financial theory of markets [Fama and French, 2004].

However, these authors also show that since the late 1970s, there has been mounting evidence that the variation in expected return is unrelated to market beta alone. Their exhaustive summary of various studies shows that certain factors ignored by CAPM have a significant role in influencing future returns.

They include:

- Price-earnings ratios
- Company size as measured by market capitalisation
- Debt-equity ratios that measure leverage
- Book-to-market equity ratios.

Fama and French went on to consider whether these seemingly 'spurious' results might be the result of data dredging: publication-hungry researchers scouring the same US data on returns and unearthing contradictions that occur in specific samples by chance. However, they dismissed this possibility as these additional factors were also identified as significant in other independent studies, using Japanese and European data.

These other studies also show that CAPM ignores investors' behavioural biases, they often over-extrapolate past performance resulting in stock prices that are too high for growth firms and too low for distressed firms. When the over-reactions are eventually corrected, value stocks tended to end up with high returns and growth stocks with low returns.

This is a far cry from CAPM's key premise that investors care only about the mean and variance of distributions of one-period portfolio returns. In two previous papers, Fama and French [1993, 1996] refine the original specification of the CAPM and include two other factors: company size and book-to-market equity ratios.

Later refinements included two more factors. The first was the momentum effect: stocks that do well relative to the market over the previous three to twelve months tend to continue to do well for the next few months [Carhart, 1997]. The second concerned cash flows: stocks that do well relatively also have high expected cash flows.

These and other refinements are a matter of detail. The substantive argument is that CAPM's two-point inference on active management has been sorely challenged. Namely, that expected returns are solely influenced by market beta and it is impossible to beat the market by developing special insights into company-related factors. Evidence on both these points is weak, at best. Yet, the proponents of CAPM still continue to reject active management by its *a priori* assumptions.

For them, the centrality of trade-off between risk and expected return continues to infuse all investment decisions. Even alpha is defined as returns above or below what the CAPM predicts. The twin notions, that the market is hard to beat and investors are rational, are now conventional wisdom, even among those who declare they know how to outperform.

As Fama and French conclude [2004]:

"The CAPM, like Markowitz's portfolio model on which it is built, is nevertheless a theoretical tour de force. Despite its seductive simplicity, the CAPM's empirical problems invalidate its applications."

Bernstein [2007] sums it up succinctly by stating that the situation is identical to what Louis Menand, the Pulitzer Prize-winner, had to say about Freud's famous tract, *Civilisation and Its Discontents*:

"The grounds have been entirely eroded for whatever authority it once enjoyed as an ultimate account of the way things are, but we can no longer understand the way things are without taking it into account."

Much the same observation can be made about CAPM's intellectual twin: the efficient markets hypothesis, a deceptively simple notion that has become a lightning rod for its disciples and opponents alike.

3. A dangerous comfort blanket

Despite numerous modifications, the basic thrust of the EMH has not changed much since the Nobel Laureate Paul Samuelson first proposed it:

- Individual investors form expectations rationally
- Expectations are based on all available information
- Markets aggregate information efficiently and
- Equilibrium prices incorporate all information.

In a seminal article [Samuelson, 1965], he argued that prices fully reflect all available information. In an efficient market, price changes cannot be predicted with any realistic degree of accuracy, since they already incorporate the information and expectations of all market participants.

The underlying idea is that in a large, active marketplace for publicly traded securities, vigorous competition among thousands of investors will drive speculative profits to zero. To the extent that speculative trading is costly, speculation must be a loser's game.

On this argument, passives are bound to beat actives that seek to exploit mispriced assets relative to a risk-adjusted benchmark, since the invisible hand of the market works faster than any single investor.

Samuelson's concept of informational efficiency has a Zen-like counterintuitive flavour [Lo, 2004]. The more efficient the market, the more random are the price changes generated by it. In the extreme case of efficiency, price changes are totally random.

The implications are clear. If prices are unforeseeable, then:

- Their future direction is random
- They follow a bell curve distribution
- They nullify active management.

Until the EMH was subjected to a battery of empirical tests, the received wisdom was simple: when new information emerges, the news spreads very quickly and is instantly incorporated into the price of securities.

Hence, neither technical analysis (the study of past prices to predict future prices) nor fundamental analysis (study of company-specific data) can enable investors to identify 'undervalued' stocks and achieve returns greater than those that could be obtained by a randomly selected portfolio of individual stocks.

Unsurprisingly, the hypothesis is linked with the concept of a 'random walk' in the finance literature to caricature a price series where all subsequent price changes display arbitrary departures from previous prices.

On this argument, the price of a financial asset always reflects all available information relevant to its value. Deviations from equilibrium value cannot last long. Investors with information on under-valued assets will drive up their prices and make money in the short term. Beating the market in the long run is a fool's game. Markets are omnipotent. Active management doesn't work.

This belief has spawned today's \$4 trillion index fund industry. While the history of the Dow Jones Industrial Average dates back to 1896, it is worth emphasizing that this index was simply a market proxy, not an investment idea. The earliest indices were not created to evaluate manager performance, but to provide a representative outcome for the stock market as a whole.

However, as technology developed to recreate market portfolios and observers noted that fewer managers were beating their benchmarks, enterprising asset managers saw an opportunity to deliver market representative returns at rock-bottom costs. As indices proliferated, the EMH became a *de facto* investment strategy in its own right [Sahai and Poor, 2011].

So widespread was the acceptance of the EMH that another Nobel Laureate [William Sharpe, 1991], had no hesitation in brandishing its detractors as being wholly economical with the truth:

"Properly measured, the average actively managed dollar must underperform the average passively managed dollar, net of costs. Empirical analyses that appear to refute this principle are guilty of improper measurement."

But with the 2008 market meltdown, the knives were out.

Writing for *The Washington Post* in June 2009, financial journalist and best-selling author Roger Lowenstein pulled no punches:

"The upside of the current Great Recession is that it could drive a stake through the heart of the academic nostrum known as the efficient market hypothesis."

In a similar vein, writing in his quarterly letter in January 2009, Jeremy Grantham, a highly respected money manager at GMO, said:

"The incredibly inaccurate efficient market theory [caused] a lethally dangerous combination of asset bubbles, lax controls, pernicious incentives and wickedly complicated instruments that led to our current plight."

However, long before then, academic researchers had been training their guns on the EMH. Notably, however, none of them anticipated the catastrophic outcomes narrated by Lowenstein and Grantham. Instead, they were much more concerned about the nitty-gritty of improving the explanatory powers of the theory at the margin.

Hardly anyone questioned its foundations. This was an era in which the 'rational expectations' school of thought, pioneered by economists at the University of Chicago, was in rapid ascendancy. It believed in the primacy of markets as an article of faith: markets knew how to value resources and allocate them most efficiently through an impartial and robust price mechanism. The invisible hand of the market, so the argument ran, knew better than the visible boot of the state.

So, the new research focused on the narrow issue of whether past price changes could predict future price changes. They did find weak evidence that the past foretold the future. But these studies did not address a number of critical questions:

- How is the information generated before it impacts market prices?
- What mechanism causes the information to be reflected in prices?
- What is the incentive for anyone to generate the information?
- Why would anybody do any research on a company, if trading on information is unprofitable?
- If nobody collects any information, how can prices still reflect all the information?
- Most importantly, are markets 'efficient' in the sense that they can price assets correctly?

These questions led to a number of refinements of the original idea propounded by Samuelson.

Grossman and Stiglitz [1976] focused on information acquisition. They showed that those who invest in research are rewarded through speculative profits so that they at least recoup the cost of that activity. By being the first mover of the 'invisible hand', they drive prices towards their fair economic value. Thus, by extension, the authors envisaged the role of active management backed by superior resources and skills.

In a parallel tract, there also emerged the arbitrage pricing theory [Ross, 1976], which showed that the activity of arbitrageurs would naturally drive the expected returns to a level that correctly reflects the risk-return trade-off of any asset.

The idea was further refined in a paper that was based on the old adage from John Maynard Keynes that 'markets stay irrational longer than you can stay solvent' [Schleifer and Vishny, 1997]. They showed that high financing risk forces arbitrageurs to be cautious about exploiting mispricing. The outcome can be calamitous, if this risk is ignored, as happened in the case of Long-Term Capital Management.

Its highly leveraged bet on the convergence of US vs European and Japanese bond yield following the Asian currency crisis was sound and the convergence did actually happen. However, in the meantime, the leverage bankrupted LTCM and created a systemic crisis in 1998.

Over time, empirical studies came to acknowledge that active management can, and does, regularly exploit the deviations from equilibrium prices via specialised knowledge, lower trading costs, low management fees and a financing structure that rides out price anomalies persisting over a long period.

Indeed, if everybody shared the same opinion, nobody would trade [Black, 1986]. Differences in opinion create inefficiency and this in turn is the basis for trading. Earnings from active management are a reward for informed investors for identifying and exploiting mispricing created by other investors. But that is not all.

Researchers argued that the segmentation of markets and investors can have an impact on the market values of securities, on top of their business fundamentals [Barberis, Schleifer and Wurgler, 2003]. Investors are shown to pigeon-hole securities – by, for example, geography, index or size – due to information limitations, trading restrictions and trading costs.

However, the reader who wades through this and other studies should expect a long hard slog, with little likelihood of emerging on the far side appreciably enlightened.

All they will discover is that it is nigh on impossible to test the two key propositions of the EMH: (a) markets are efficient since they incorporate all available information and (b) markets provide a fair valuation of securities. Neither of these propositions can be independently tested via the conventional econometric methods. Hence the EMH can never be rejected [Campbell, Lo, and MacKinlay, 1997].

While a number of factors – ‘*anomalies*’ – have been identified as delivering higher returns over time that cannot be explained by the EMH, there is no consensus on whether these factors reflect the existence of an inefficient market or the dynamic nature of risks that no model can explain.

The sceptics, as a result, go for the jugular: anomalies mean that the whole paradigm of rational expectations that reigned supreme for nearly fifty years is no more than an ideological aspiration about how markets *ought* to work under the tenets of neo-classical economics. The crash-landing of its two cherished idols – CAPM and EMH – in 2008 shows all too well that they were as remote from the complexities of markets as the man on the moon.

Writing in *The New York Times Magazine* in September 2009, another Nobel Laureate, Paul Krugman, argued that Chicago School free market theorists “mistook beauty.... for truth”. The synthetic outrage provoked by the article generated more heat than light [Frydman and Goldberg, 2011].

The advocates of the EMH countered that it is still alive and well except for periodic distortions. The stock market is a voting mechanism in the short term, but a weighing mechanism in the long term. True value will win out in the end.

They also contend that the EMH never stated that the markets are ‘*efficient*’ in the sense they can price assets correctly: all it said was that prices reflect all known information. It does not say that this information is valued correctly in any sense: prices merely reflect the current consensus of the market without preventing market changes on a whim. In short, markets can be inefficient and inaccurate.

This volte-face is all the more remarkable for its tacit subtlety. For belief continues to reign supreme over reason: reality is not allowed to obscure the theory! No wonder the average investor is bewildered. No wonder Lowenstein and Grantham pull no punches.

For now, it is worth restating the measured conclusion of the most detailed review presented in a recent landmark report commissioned by the Norwegian Government Pension Fund [Ang, Goetzmann, and Scherfer 2009];

“The balance between indexation and active management is a choice variable for which the optimum depends on general beliefs about the existence and potential of manager skill, the pricing opportunities afforded within a given market, the time preferences and risk aversion of the investor, and the expertise and incentive contract of the specific manager.”

Translation: the EMH leapt from unwarranted assumptions to pre-conceived conclusions.

4. A bullet dodged

The original attempts to check the randomness of stock prices looked at whether the way a price behaved in the past is any guide to how it will behave in the future. They showed that stock prices did not behave as random walks. Future price changes were influenced by the

To economists and psychologists engaged in the field of behavioural finance, such short run momentums are consistent with the “bandwagon effect”. The famous example of that was the psychological contagion leading to irrational exuberance with the tech bubble in the 1990s [Shiller, 2001].

The behaviouralists acknowledge the inherent fallibility of mortal investors. To them, humans are highly imperfect organisms, given to bouts of greed and fear. They are impatient; they make analytical errors, suffer from bad data interpretation and overrate their abilities. Moreover, they are hard-wired for self deception, plain ad hocery, and faulty logic, contrary to the premises of the EMH. They are not rational, calculating machines, without systematic biases, whose behaviours can be predicted by mathematical models.

The most memorable indictment from this behavioural perspective came from Shiller [1981]:

“Just because markets are unpredictable doesn’t mean they are efficient. The leap in this logic was one of the most remarkable errors in the history of economic thought.”

Before then, however, the new behavioural edifice had started to expose fault lines in the EMH, since the landmark publication of *Prospect Theory* [Kahneman and Tversky, 1979].

It accepts that there is often a reasonable balance between different types of investors in the market and deviations in valuation are often corrected. But look under the bonnet and you’ll find a whole bunch of behavioural cognitive biases ticking away – sometimes cancelling each other out, most times not. These biases reflect imperfections in their perceptions of reality.

In finance, four biases are most common:

- **Mental accounting:** dividends are perceived as additions to income; capital gains are not
- **Biased expectations:** people tend to be overconfident in their predictions of the future
- **Reference dependence:** investment decisions are affected by an investor’s reference point which tends to be arbitrary
- **Representativeness heuristic:** investors mistake good companies for good stocks, not realising that their stock is usually already fairly valued, leaving little upside potential.

If the new behavioural finance is closer to reality than the old EMH paradigm of rational, calculating utility-balancing economic man, why has it failed to make major inroads into conventional thinking? There are two reasons.

The first reason is the power of the old guard, protecting the citadel for free market economics. It was the scientist Max Plank who showed that science advances “one funeral at a time”. It requires the old, controlling generation to die before new ideas that threaten their conception can take hold.

The second reason is that the EMH appears to work a lot of the time and then suddenly blows up. It is analogous to the relationship between Newton’s laws of gravity and Einstein’s theory of relativity. The former approximates the latter so long as the odd stuff about the speed of light and anti-gravity are taken out.

The problem seems to arise from the frequency of events in markets. High frequency events tend to follow the predictions of the EMH. If asset prices tend to deviate overly from an accepted norm, then the normal mechanism of the market brings them back in line.

On the other hand, there are also low frequency events that do not follow the EMH. When they occur, efficient market strategies can be disastrous, as deviations from sensible valuations turn explosive rather than self-correcting. Rational economic theories can’t

Finally, for all its fresh insights, the new behavioural finance can tell us why things go horribly wrong but not when. Not surprisingly, Samuelson admired Kahneman but considered much of the work in the behavioural finance “*a lot of noise*” [Bernstein, 2007].

He doubted if one could make money out of it. To him, most investors do not even understand how to capitalise on behavioural anomalies even if they are sceptics about efficiency and fans of behavioural finance. However, he did not address the bigger issue: namely, to what extent can such behavioural biases cause market contagion with disastrous consequences for the world economy?

Research attention remained firmly focused on the nuts-and-bolts of the EMH. On the one hand, some proponents of behavioural finance recognise its limitations, as spelt out by Samuelson. On the other hand, the proponents of EMH started to factor in the behavioural effects.

This synthesis is clear from the emergence of *The Adaptive Markets Hypothesis* [Lo, 2004]. It argues that investors are hardly capable of the kind of utility optimisation assumed in the EMH. Since optimisation is costly and since humans are limited in their computational abilities, they engage in ‘satisficing’: making choices that are satisfactory, not optimal. Such decisions are reached not analytically, but through trial and error that enables one to develop simple rules of thumb that evolve into heuristics over time.

Thus, when the environment changes, the heuristics of the old environment are not necessarily suited to the needs of the new. The mismatch gives rise to behavioural biases: actions seem ill-advised in the context in which they are taken.

However, according to Lo, the new paradigm of AMH is still in its infancy and requires a great deal more empirical testing before it dislodges the EMH. He admits that:

“The internal consistency and logical elegance of the EMH framework are almost hypnotic, and it is all too easy to forget that the EMH is merely a figment of our imagination, meant to serve as an approximation – and not always a terribly accurate one – to a far more complex reality. Unlike the law of gravity and the theory of special relativity, there are no immutable laws of nature from which the EMH has been derived.”

The implications are clear. Neither the CAPM nor the EMH have the necessary empirical credence; quite the reverse. Yet, they remained firmly anchored in the investor psyche and policy thinking in the West – at least until the 2008 market meltdown. It reminded us all too painfully that [Derman, 2011]:

“CAPM is a useful way of thinking about a model world that is, quite often, far from the world we live in.”

5. The moment of reckoning

In hindsight, it beggars belief that the sub-prime mortgage boom in the US lasted for as long as it did.

The Federal Reserve could not foresee a concealed time bomb. Nor did it have the inkling that any sub-prime crisis in the US would soon tip into a global disaster by the new mark-to-market rules introduced after 2004. So keen it was to sustain the economic recovery in the 1990s that at every whiff of a market downturn, fresh liquidity was pumped into the system. With the banking system awash with cash, product innovation proliferated.

Sub-prime loans became a ready outlet, once they were sliced, diced and repackaged to create the magic dust. Authorities believed that the efficiency of the markets would ensure their fair valuation and attract willing buyers around the world for these freshly minted securitised products – many with (bogus) triple-A rating. Also by spreading their risks across the global investment community, their use of derivatives would pre-empt any systemic risks. Alan Greenspan, no less, was emphatic on the merits of this financial engineering [1997]:

"The use of a growing array of derivatives and the related application of more sophisticated methods of measuring and managing risk are key factors underpinning the enhanced resilience of our largest financial institutions. ... As a result, not only have individual financial institutions become less vulnerable to shocks from underlying risk factors, but also the financial system as a whole has become more stable."

The rest is history. No wonder, today's investors fall into two camps: the shocked and the dismayed. Indiscriminately, like a tsunami, the 2008 sub-prime crisis wiped out some \$15 trillion in asset values, hitting every asset class, every market, every geography and every client segment: 15 years of capital gains were wiped out in 15 months.

Yet, in May 2007, barely three months before the crisis unfolded, Ben Bernanke couldn't see a phenomenon of this magnitude coming, when he stated in a public speech in May 2007:

"We do not expect significant spill-over from the sub-prime market to the rest of the economy or to the financial system."

Nor did Gordon Brown, for that matter. In his June 2007 Mansion House speech he said:

"Everyone needs to follow the City's great example and emulate this high value-added talent-driven industry. Thanks to its remarkable achievement, we have the huge privilege to live in an era that history will record as the beginning of a Golden Age."

Of the 20 biggest daily upswings in the S&P 500 since 1980, 10 have occurred in the last five years. Likewise, of the 20 biggest downswings, 13 have taken place in the last 5 years. Rarely have the stock markets been so wild and moved so little, until early 2012. With too many wild variables, investing has become a loser's game.

This is a far cry from the heady days of the 1990s when the unrelenting chase for relative returns delivered double digit performance year after year until the ensuing crash in March 2000. It was a defining moment. Investors discovered that index hugging could not buy groceries in a bear market; nor could it prevent an unprecedented funding shortfall in defined benefit pension plans worldwide. Thus, uncorrelated absolute returns became the new mantra.

Some 30 new product sets, asset allocation tools and hedging techniques were duly adopted [Rajan, 2011]. They aimed to control risk and boost returns irrespective of market conditions – only to be overwhelmed by the crash of 2008.

That episode showed that the world of investing can be a hall of mirrors: what you see is not as it is. Securitised mortgages in the US are just one example. The other is a raft of structured products that were subsequently hammered by the collateral damage from the collapse of Lehman Brothers and AIG. But that is not all.

In the heady days of the 2000s, there was a growing belief that the economies of the East and the West had significantly decoupled to the point where a market crisis could be contained. Yet, China and Russia notched up the biggest market falls in the immediate aftermath of the Lehman collapse. Globalisation had created greater economic connectivity and contagion susceptibility – concepts that were wholly alien to the EMH.

They are hard to model in a world where technology has amplified investor mood swings and compressed decision spans from calendar time to real-time. Nearly 65% of daily movements in key market indices are now driven by 'noise' rather than 'signal'. Politics, not economics, drives the markets. Also, high frequency trading reinforces the periodic bouts of risk-on/risk-off that are unconnected to corporate fundamentals, a far cry from the self-correcting mechanisms of the efficient markets.

In hindsight, investors have learnt that they were not managing risk, they were managing uncertainty. One relies on known probabilities of expected returns, the second on pure guesswork. As one large pension plan participating in the 2011 CREATE-Research survey observed,

"We've lost money in every asset class we were advised to follow in the last decade".

Few policy makers and their economists saw the bear markets coming; few detected the time bomb concealed in cheap money; few understood the unintended consequences of the mark-to-market rules; few expected the asset class correlation to go through the roof; few challenged the validity of the bar belling model. Long conditioned to viewing the investment landscape through the prism of EMH, they failed to see that investing had become ever more nuanced in the face of systemic forces akin to the Black Swan [Taleb, 2007].

In retrospect, the 2000-02 equity crash was a defining moment in global fund management. It set off a chain reaction whose cumulative impacts were hard to foresee. As millions lost billions, the old ways of investing fell into dispute. Nor could the hype of equity risk premium or benchmark hugging stop a severe shortfall in defined benefit pension plans worldwide.

So, they switched from relative to absolute returns, in what promised to be an era of low nominal returns. This decisive shift coincided with the most benign conditions in credit markets in living memory. These conditions served to perpetuate the myth that absolute returns were not only desirable but also deliverable, thanks to the arrival of the 'new masters of universe' who had suddenly rediscovered the skills that lay fallow in the bygone era of relative returns, when chasing alpha was like looking for a needle in a haystack.

In the brave new world of absolute returns, this new breed of managers overly relied on the use of leverage, shorting and derivatives in their freshly minted 'go anywhere' type strategies. Risk was stacked up like a wedding cake. Like alchemy and quack medicine, the prevailing risk models thrived on the investors' wish to believe in impossible things. The advice from a leading thinker of the day was largely ignored [Scholes, 2005]:

"We make models to abstract reality. But there is a meta-model beyond the model that assures us that the model will eventually fail. Models fail because they fail to incorporate the inter-relationships that exist in the real world."

6. What's all this got to do with efficient markets?

First, it helped to cultivate the belief that markets are always right and mean reversion towards fundamental values is the norm. A new lingo was created which, in hindsight, used clever words to conceal longstanding problems. Policy makers, especially in the UK and the US, were seduced into believing either that bubbles never happened, or if they did there was no hope that central banks could spot them and intervene. Evidently, they believed that markets have their own self-correcting fair-value dynamic. The only thing that central banks can do is to mop up the periodic mess afterwards. That thinking lay behind

the two savage bear markets of the last decade. It also lay behind the whole mark-to-market accounting edifice introduced in 2004 that rests on the view that only markets can provide 'fair' valuations at all times. Arguably, that edifice turned the US sub-prime crisis into a global disaster, when the value of all securitised assets dropped like a stone, irrespective of their intrinsic worth.

Second, it also turned investing from art to science; from craft to industrialisation; from judgment calls to mechanical formulas. Much of the innovations – e.g. derivatives, shorting, leverage, portable alpha, high frequency trading – were justified on the grounds that the only way to beat the markets was to create ever more clever mouse traps. More often than not, they have aimed to extract value where there is none. Systemic risks, product complexity and higher charges have been the main outcomes.

Third, the EMH fostered complacency amongst policy makers and investors alike. Most of them did not realise that, under the froth of the booming markets in the period 2002-08, serious fault lines were developing in the investment landscape in response to mega forces like the globalisation of markets, the impact of revolutionary technologies, and the unintended consequences of regulatory changes – to name but a few. Via mounting anomalies, caused by periodic bouts of dislocations, these forces were progressively eroding the twin pillars of asset allocation: equity risk premium and asset class diversification.

The anomalies in question arose due to: the ad hoc manner in which markets react to information; the unstructured means by which markets price a given asset; and the behavioural biases of investors who continue to use the old heuristics for new situations.

The anomalies have multiplied as markets have gone from: local to global; calendar time to real time; clear 'signal' to loud 'noise'; buy-and-hold investing to opportunistic investing; and asset management to liability optimisation.

Last, but not least, the 'industrialisation' of investing has, in turn, depersonalised relations between investors and their asset managers. Unlike their physical counterparts, like cars and computers, investment products do not have a definable shelf life, they do not deliver predictable outcomes, they cannot be pre-tested in a lab, and they do not carry a fit-for-purpose certificate. For good returns, what matters most are timing and market environment. These require a far higher degree of engagement between investors and their managers than has been the case over the past 20 years where dis-intermediation has become ever more pronounced [Rajan 2012].

For asset managers, it is essential to:

- Understand their clients' dreams and nightmares
- Solicit new ideas by tapping into clients' investment expertise
- Manage expectations in what can and can't be delivered
- Minimise *'wrong time'* risks in buying and selling
- Communicate bespoke research that addresses unique issues to clients
- Highlight proactive buying opportunities in periods of big price dislocations.

For investors, it is essential to:

- Seek better alignment of interests via common beliefs and time horizons
- Obtain a second opinion on their asset allocation and correlation risks
- Gain deeper insights into what works at different stages of market cycle
- Develop the mental agility to capitalise on periodic market dislocations
- Minimise behavioural biases and herd instinct provoked by periodic volatility
- Understand the 'health warnings' that are usually lost in the fine print of legal agreements.

7. What next?

Our main conclusion is that neither the CAPM nor the EMH have much empirical support. They work until they don't work. Both have undergone significant refinements to the point where their much-publicised inferences – that markets are efficient and active management does not work – are no longer tenable.

Yet, they have reigned supreme for the best part of half a century, having a profound influence on the psyche of financial investors, policy makers and the investment industry.

It is probably too far-fetched to single them out as the key culprits in the current crisis. They are merely ingredients in a rich stew of financial irresponsibility, political ineptitude, lax regulation and perverse incentives. Besides, the world of investing is too complex for a few naïve ideas to bring it to its knees.

It is equally hard to underestimate their influence on the forces that have brought us to where we are today. They promoted a world view detached from the on-the-ground reality. For a long time, they rode on the back of the strong pro-market anti-regulation sentiment unleashed by the Thatcher-Reagan era in which faith mattered more than facts.

Either way, this paper has had the limited goal to describe how modern financial theory has evolved and how it has been linked to the current crisis. As such, its tone and content have been deliberately retrospective.

Subsequent papers in the 300 Club series will focus on some of the challenges highlighted in the last two sections and the responses they require from governments, investors and asset managers. Areas that will receive special attention are dynamic asset allocation, manager selection, principal-agency relationship and client engagement.

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Current economic and investment trends will change the investing landscape over the next two decades and we are at a crisis point which presents huge risks to investors, according to the 300 Club. Moreover, the 300 Club believes that current financial and investment theory and practice run the risk of failing investors at their time of greatest need.

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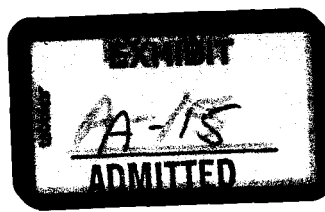
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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE, Chairman

BOB STUMP

SANDRA D. KENNEDY

PAUL NEWMAN

BRENDA BURNS

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER – PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA.

DOCKET NO. SW-03575A-12-

Direct Testimony

of

Matthew J. Rowell

(Excluding Rate of Return)

July 9, 2012

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1 **I. Introduction.**

2 **Q. Please state your name, occupation and business address.**

3 **A.** My name is Matthew J. Rowell. My business address is 9808 S. 45th Place, Phoenix,
4 Arizona.

6 **Q. Please describe your experience and qualifications.**

7 **A.** I received a Bachelor of Science degree in Economics from Florida State University in
8 1992. I spent the following four years doing graduate work in economics at Arizona State
9 University where I received a Master of Science degree and successfully completed all
10 course work and exams necessary for a Ph.D. My specialized fields of study were
11 Industrial Organization and Statistics.

13 I joined the Staff of the Arizona Corporation Commission in October 1996. I served on the
14 Commission's Staff for just over ten years. For the last five years of my employment with
15 the Staff, I held the position of Chief Economist. In my time on the Commission's Staff, I
16 was involved in a myriad of utility cases, ranging from energy rate cases, competitive
17 telecommunications cases and the Commission's Water Task Force. As Chief Economist,
18 I also supervised a team of professionals who provided testimony and expert advice
19 regarding utility regulation to the Commission.

21 Prior to my Commission employment, I lectured on economics at Arizona State
22 University, was employed as a statistical analyst for Hughes Technical Services and I
23 authored and co-authored several research papers for the Arizona Department of
24 Transportation.

26 After leaving the Commission, I became a principal with the firm of Desert Mountain
27 Analytical Services, LLC. In that capacity, I have provided expert testimony and

1 consulting services to utilities, developers, and the Residential Utility Consumer Office. In
2 addition, I am now a member of the Society of Utility Financial Analysts and I have earned
3 the designation Certified Rate of Return Analyst (CRRRA).
4

5 **Q. Please describe your testimony.**

6 A. In this volume, I provide testimony regarding rate consolidation and deferred income
7 taxes. In a separate volume, I provide testimony regarding rate of return, including capital
8 structure, cost of debt, and cost of equity.
9

10 **II. Rate consolidation in the west valley.**

11 **Q. Please discuss Global's rate consolidation proposal.**

12 A. The Global Utilities propose consolidating the rates of three utilities in the west valley:
13 Water Utility of Greater Tonopah ("WUGT"), Valencia Water Company – Town
14 Division and Valencia Water Company – Greater Buckeye Division. I will refer to these
15 three companies as the "West Valley Utilities."
16

17 **Q. Has the Commission approved rate consolidation in the past?**

18 A. Yes, in some cases, but in other cases it has been rejected. The decisions seem to be
19 highly fact-specific.
20

21 **Q. What facts support consolidation?**

22 A. Most importantly, the customers of WUGT would face a large rate increase without
23 consolidation. WUGT has a small number of customers (324 at test year end). That
24 simply is not a lot of customers to spread the full cost of service over. Consolidation
25 would allow the cost of service to be spread over a much larger number of customers.
26

27 Combined, the three West Valley utilities had 6,294 customers at test year end.

1 Moreover, these three utilities are all located in the west valley, and each is served by
2 operators from Global's west valley regional center in Buckeye, Arizona. In other words,
3 the employees are the same, they use the same fleet, equipment, tools, etc, and are in the
4 same general location.

5
6 **Q. What are the benefits of rate consolidation?**

7 A. The main drivers for this consolidation are:

- 8 • Mitigates the necessary rate increase for WUGT;
- 9 • Addresses small system viability issues;
- 10 • Promotes customer fairness with a consistent rate for a similar service; and
- 11 • Provides incentives for regionalization and consolidation

12
13 **Q. Please describe the goals of rate consolidation from a regulatory perspective.**

14 A. The EPA and NARUC report "CONSOLIDATED WATER RATES: Issues and Practices
15 in Single-Tariff Pricing"¹ states that the short term goals for rate consolidation focus on
16 "enhancing the financial capacity of water systems and making rates more affordable for
17 water customers" while the long term goals are "consolidating the management and
18 operation of water systems, or "regionalization," to achieve multiple policy goals."² Both
19 goals are served in this case. Consolidation will directly address affordability issues for
20 WUGT's customers. In addition, these three utilities (along with two others) were
21 acquired by Global Water in 2006. These utilities were small and in need of capital
22 improvements. Rate Consolidation allows the necessary capital improvements to be
23 spread out over a larger customer base. Approving consolidation in this case not only
24 helps with the current situation for the West Valley Utilities, it also sends the signal that
25 the Commission will support companies which take on challenging acquisitions.

26
27

1. Available at: <http://www.epa.gov/ogwdw000/utilities/stptitle.pdf>.

2. CONSOLIDATED WATER RATES: Issues and Practices in Single-Tariff Pricing (Sept. 1999)
at 6.

1 Additionally, Staff has taken the position that "One of the most valuable outcomes of
2 consolidated rates is that it allows the purchase of these systems by larger, more stable
3 companies who can in turn spread this investment over a much larger customer base."³
4

5 **Q. How many customers do each of these utilities have?**

6 **A.** The number of customers in each utility is provided below:

7

Utility	Test Year End Customers
Water Utility of Greater Buckeye	324
Valencia Water Company – Greater Buckeye Division	627
Valencia Water Company – Town Division	5,343
Total	6,294

15

16 **Q. Can you describe the similarities of these three utilities?**

17 **A.** At a fundamental level, they are all located in the same region; they are all groundwater
18 systems, most have some requirement to provide treatment (for arsenic and/or fluoride)
19 and all receive shared operations and management services from Global Water's staff.
20

21 The Joint EPA and NARUC report provides some technical background on the reasoning
22 behind the applicability of consolidated rates despite some on-the-surface differences.
23

24 **Q. How does rate consolidation promote regionalization and consolidation of water**
25 **utilities?**

26
27 ³ March 13, 2009 Surrebuttal Testimony of Elijah O. Abinah filed surrebuttal testimony on
behalf of Staff in the Arizona-American rate case (Docket No. W-10303A-08-0227), page 9, line
2.

1 A. As noted in the Joint EPA / NARUC report, "Single-tariff pricing can be an incentive for
2 larger water utilities to acquire small water systems that lack capacity because it makes it
3 possible to spread costs over a larger service population and maintain more stable and
4 affordable rates for customers of some smaller and more expensive systems."⁴ The report
5 also comments that "pricing is intrinsically related to structural change in the water
6 industry" and that pricing policies like rate consolidation "ultimately will play a role in
7 shaping the future structure of the water industry, including but not limited to the future
8 of small water systems."⁵

9
10 **Q. Can rates be consolidated, even though the systems are not physically**
11 **interconnected?**

12 A. Certainly. WUGT consists of 8 separate systems with common rates, and Valencia
13 Water Company – Greater Buckeye Division consists of 4 separate systems with common
14 rates. In the past, the separate WUGT and Greater Buckeye systems had separate rates,
15 but the Commission later approved consolidated rates for those utilities. Our proposal
16 simply takes this process one step further.

17
18 **Q. Has the Staff laid out any guidelines for determining when rate consolidation is**
19 **appropriate?**

20 A. Yes, Staff filed testimony in Docket No. W-10303A-08-0227 that laid out criteria that
21 should be considered when evaluating a rate consolidation proposal.⁶

22
23 **Q. How does Global's proposal for consolidation of the West Valley utilities compare to**
24 **that Staff criteria?**

25
26 ⁴ Id. at vii.

27 ⁵ Id. at 28.

⁶ March 13, 2009 Surrebuttal Testimony of Elijah O. Abinah filed surrebuttal testimony on behalf of Staff in the Arizona-American rate case (Docket No. W-10303A-08-0227)

1 A. I believe Global's proposal compares quite favorably with Staff's criteria. Staff listed the
2 following criteria for evaluating consolidation proposals:

- 3 • Public health and safety
- 4 • Proximity and location
- 5 • Community of interest
- 6 • Economies of scale/rate case expense
- 7 • Price shock/mitigation
- 8 • Public policy
- 9 • Other jurisdictions

10
11 **Q. Please discuss the public health and safety factor.**

12 A. Staff presented a hypothetical example of a small utility that needs to substantially upgrade
13 its system in order to "alleviate health or public safety issues such as water quality." With
14 few customers to bear the costs of such an investment, the rate increase associated with
15 such improvements could be large. However, if the small systems were consolidated with
16 one or more other systems the rate impact would be mitigated because the cost of the
17 necessary investments can be spread across many more customers.⁷

18
19 Staff's hypothetical example is remarkably similar to the actual circumstances faced by the
20 West Valley Utilities. WUGT has a small number of customers. The WUGT systems
21 have required substantial upgrades, including arsenic and fluoride removal systems, and
22 other infrastructure mandated by Commission decisions (e.g. a secondary water source for
23 WUGT's Sun Valley system). Without consolidation, rate recovery for these
24 improvements falls entirely on these few customers. Combined, the three West Valley
25

26
27 ⁷ Surrebuttal Testimony of Elijah O. Abinah, Docket Nos. W-01303A-08-0227 et al., page 9 line 26.

1 utilities have over 6,000 customers, and the infrastructure costs can be spread across this
2 larger customer base.
3

4 **Q. Please discuss the proximity factor.**

5 A. Staff believes that proximity is an important but not necessary factor in evaluating a
6 consolidation proposal. Additionally, Staff believes that physical interconnection should
7 be required when technically and financially feasible. Valencia's Greater Buckeye
8 Division and Town Division are both located in or near Buckeye in the West Valley.
9 WUGT's service territory is located in Tonopah about twenty miles west of Buckeye. All
10 three of the utilities are served by operators from Global's west valley regional center in
11 Buckeye. So the three utilities are in the same general area and share the same employees.
12 While these three utilities are in relative proximity to each other, interconnection of their
13 systems is not technically or financially feasible. In fact, there are separate public water
14 systems *within* each utility that are not physically interconnected. Interestingly the rates of
15 the separate public water systems within each utility are consolidated.
16

17 **Q. Please discuss the community of interest factor.**

18 A. Staff indicates that consideration of a "community of interest" should also influence
19 decisions regarding consolidation. For instance, Staff suggests that whether the relevant
20 "districts/systems have a common interest such as, schools, hospitals, recreational parks,
21 churches, etc."⁸ should be considered when deciding whether those systems should be
22 consolidated. A community of interest exists amongst the three service areas as they use
23 common recreational and medical facilities. In fact, most amenities (other than schools)
24 require travel into the Buckeye area (or even further into the Phoenix metro area.)
25
26
27

⁸ Ibid, page 9, lines 16-20.

1 **Q. Please discuss the economies of scale / rate case expense factor.**

2 A. Staff asserts that the potential for economies of scale in rate case expense and other areas is
3 a factor to consider when evaluating consolidation proposals. There are definitely
4 economies of scale associated with these three utilities. In terms of rate case expense,
5 putting together one consolidated set of rate schedules instead of three separate ones would
6 save a considerable amount of time and effort. This reduction in time and effort applies to
7 the Staff and interveners as well as the utility.

8
9 **Q. Please discuss the price shock / rate mitigation factor.**

10 A. Staff posits that the potential for price shock and mitigation efforts should be considered
11 when evaluating consolidation proposals.⁹ Global's consolidation proposal will
12 substantially mitigate the impact of the rate increase on WUGT's customers while having a
13 much less dramatic effect on Valencia – Greater Buckeye Division's and Valencia's –
14 Town Division's customers.

15
16 **Q. Please discuss the public policy factor.**

17 A. Staff asserts that public policy considerations should be considered when evaluating
18 consolidation proposals. Specifically, Staff cites three "key public benefits" arising from
19 rate consolidation¹⁰ and all three of these benefits apply to Global's current proposal:

- 20 1. The opportunity for efficient consolidation of small troubled water
21 companies, some of which may be some distance from other companies'
22 current foot print.

23 The three utilities involved were all undercapitalized and in need of improvements when
24 purchased by Global. Rate consolidation will promote future consolidation of similar
25 systems.

26
27 ⁹ Ibid page 10 lines 4-22.

¹⁰ Ibid page 11 lines 1-13.

1 2. The ability to minimize severe price shocks experienced by one or two
2 communities as a new facility or major upgrade is undertaken.

3 Global's consolidation proposal is specifically intended to mitigate the rate impact for
4 WUGT's customers.

5 3. Improving the effectiveness of certain key programs such as low income
6 tariffs by including resources from across the state.

7 Global's proposed low income tariff (approved in Decision No. 72440) is designed to
8 operate across all the Global Utilities. Therefore, it will be largely unaffected by the
9 outcome of the rate consolidation proposal. Without cross-utility subsidies, the low
10 income tariff would be untenable for smaller utilities like WUGT.

11
12 Also, Global's tiered rate structure will be easier to administer and educational material
13 will be easier to prepare and disseminate with one set of rates rather than three.

14
15 **Q. Please discuss the other jurisdictions & municipalities factor.**

16 A. Staff suggests that examining other jurisdictions' treatment of rate consolidation is
17 appropriate.¹¹ The issue of rate consolidation for water utilities has been reviewed by
18 NARUC and in 2005 rate consolidation was adopted as a "best practice" by the NARUC
19 board of directors.¹²

20
21 **Q. Please summarize your rate consolidation testimony.**

22 A. Rate consolidation of the West Valley utilities benefits both Global and its customers. The
23 consolidation is consistent with criteria laid out by Staff and allows necessary capital
24 investments to be spread over a larger customer base.

25
26 ¹¹ Ibid page 11 lines 15-16.

27 ¹² *Resolution Supporting Consideration of Regulatory Policies Deemed as "Best Practices"*,
Sponsored by the Committee on Water, Adopted by the NARUC Board of Directors, July 27
2005. Available at: http://www.naruc.org/Resolutions/BestPractices_s0705.pdf.

1 **III. Deferred tax assets.**

2 **Q. What are deferred tax assets and liabilities?**

3 A. Deferred tax assets and liabilities result when income taxes for book purposes differ from
4 income taxes that are actually due and payable. Under NARUC's Uniform System of
5 Accounts, Deferred tax assets and liabilities are reflected in rate base account 190,
6 Accumulated Deferred Income Tax, often known as "ADIT."

7
8 In utility ratemaking deferred taxes often arise because of the difference between
9 depreciation rates recognized by the IRS and by state utility commissions. The timing
10 difference of depreciation usually results in a deferred tax liability when assets are new and
11 then, results in a deferred tax asset when the assets are older. In addition to these timing
12 differences, other differences between IRS and regulatory income taxes can result in
13 deferred tax assets and liabilities.

14
15 In fact, deferred tax assets and liabilities are common. For example, in "Financial
16 Accounting – An Introduction to Concepts, Methods and Uses" 9th Edition, Clyde P.
17 Stickney of Dartmouth College and Roman L. Weil of the University of Chicago begin the
18 section on "Income Tax Accounting and Deferred Income Taxes" by stating: "The amount
19 that a firm reports as income before income taxes for financial reporting usually differs
20 from the amount of taxable income that appears on its income tax return."

21
22 **Q. What accounting standard governs the calculation of deferred tax assets and**
23 **liabilities?**

24 A. The calculation of deferred taxes and liabilities was governed by Financial Accounting
25 Standards Board ("FSAB") Statement of Financial Accounting Standards No. 109 ("FASB
26 109"). FASB 109 has now been codified at Accounting Standards Codification 740.

1 Q. **How are deferred taxes treated for ratemaking purposes?**

2 A. Deferred taxes are applied to the rate base. Deferred tax assets increase the rate base and
3 deferred tax liabilities decrease the rate base.
4

5 Q. **Is Global requesting recovery of recorded deferred taxes resulting from Net
6 Operating Losses (NOL)s?**

7 A. No. Prior net operating losses (NOLs) have resulted in significant deferred taxes for the
8 Global utilities. However, in previous decisions the Commission has not allowed for the
9 recognition of deferred taxes resulting from NOLs to be included in rate base. While other
10 utility commissions allow inclusion of NOL in calculating rate base, and including NOLs
11 for that purpose is reasonable, for the purposes of simplicity and to limit the grounds for
12 disagreement, Global is not including NOLs in this case.
13

14 Q. **What is responsible for the bulk of the Global Utilities' deferred taxes?**

15 A. The CIAC imputation of revenue received through ICFA agreements has created
16 significant deferred tax assets in the three affected utilities: Palo Verde, Santa Cruz and
17 WUGT. When this money was received it was treated as taxable revenue.
18

19 Q. **What is the value of the deferred tax assets resulting from the CIAC imputation of
20 the ICFA revenues?**

21 A. The imputation involved over \$50 million in revenues and thus resulted in significant
22 deferred tax assets. By utility, the deferred tax assets associated with the ICFA CIAC
23 imputation are:

24	Palo Verde	\$10,661,696
25	Santa Cruz	\$10,116,230
26	WUGT	\$2,381,534.

27

1 **Q. Is Global seeking inclusion of these deferred tax assets in rate base?**

2 A. Global's primary recommendation is that the imputation of the ICFA revenue as CIAC be
3 reversed. If that recommendation is accepted, Global does not believe it would be
4 necessary or appropriate to include the above deferred tax assets in rate base. However, if
5 the CIAC imputation is not undone, proper tax accounting and ratemaking principles
6 require that these deferred tax assets be recognized in rate base.

7
8 Rate base adjustments B-2.2a and B-2.2b remove the DTAs associated with the ICFA
9 CIAC from rate base.

10
11 **Q. What ratemaking principles require deferred tax assets to be recognized in rate base?**

12 A. As previously noted, the NARUC Uniform System of Accounts requires a rate base
13 account specifically for ADIT. In addition, the leading treatise on ratemaking (Bonbright)
14 recognizes that deferred taxes should be considered in calculating rate base.

15
16 **Q. Has Global's calculation and classification of these deferred tax assets been reviewed
17 by any outside parties?**

18 A. Yes, Deloitte and Touche conducted independent audits of Global's financial statements
19 and found them to "present fairly, in all material respects, the financial position of the
20 Company..." The deferred tax assets discussed here are, of course, included in the
21 relevant financial statements.

22
23 **Q. Has the Commission recognized similar deferred tax assets in the past?**

24 A. Yes. In particular, the Commission has repeatedly recognized that CIAC and AIAC
25 financing can give rise to significant deferred tax assets. For example, in Decision No.
26 69164 (December 5, 2006), the Commission agreed with Staff and included deferred tax
27 assets associated with CIAC and AIAC in rate base. Similarly, in Decision No. 71865, the

1 Commission found that “significant CIAC and AIAC funding of plant can often result in a
2 net ADIT asset.” The Commission reaffirmed this position in Decision No. 72059, where
3 it found that “a future tax benefit is created when the Company pays taxes on AIAC
4 received. A temporary difference, i.e., an ADIT balance, is created when the Company
5 pays taxes before it makes any AIAC refunds. This creates a tax basis in the constructed
6 plant and the Company is entitled to record tax basis depreciation on that plant. When a
7 Company finances a significant amount of its plant with AIAC... an ADIT asset balance is
8 not unexpected.”

9
10 These cases are analogous to Global’s current situation. In the above cases differing tax
11 and regulatory treatment of AIAC resulted in the creation of a deferred tax asset and the
12 Commission explicitly recognized that CIAC can have the same effect. Global’s current
13 situation is similar, the imputation of revenue as CIAC has created deferred tax assets that
14 are appropriately addressed through their inclusion in rate base.

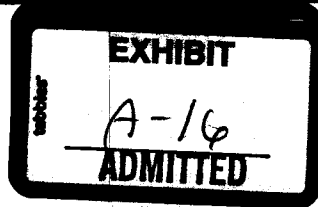
15
16 **Q. Are there other components of Global’s deferred tax assets besides the ICFA CIAC**
17 **discussed above?**

18 A. Yes. While the ICFA CIAC imputation constitutes the bulk of the deferred tax assets in
19 this case, each of the Global utilities has deferred tax assets and liabilities associated with
20 the differing depreciation rates allowed for tax and regulatory purposes as well as for meter
21 deposits, Gain Deferrals and Bad Debt.

22
23 **Q. Does this conclude your Direct Testimony?**

24 A. Yes.
25
26
27

ORIGINAL



BEFORE THE ARIZONA CORPORATION COMMISSION
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AZ CORP COMMISSION
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION OF
GLOBAL WATER - PALO VERDE UTILITIES
COMPANY FOR THE ESTABLISHMENT OF
JUST AND REASONABLE RATES AND
CHARGES FOR UTILITY SERVICE DESIGNED
TO REALIZE A REASONABLE RATE OF
RETURN ON THE FAIR VALUE OF ITS
PROPERTY THROUGHOUT THE STATE OF
ARIZONA

DOCKET NO. SW-20445A-12-0310

**NOTICE OF FILING
UPDATED DIRECT TESTIMONY**

On July 9, 2012, Global Water - Palo Verde Utilities Company ("Palo Verde" or "Applicant") filed the Direct Testimony of Brett Higginbotham, CPA. Mr. Higginbotham's testimony has been updated to reflect certain changes made in updated schedules previously filed with the Commission in this matter. Accordingly, Applicant provides this notice of filing Mr. Higginbotham's updated testimony.

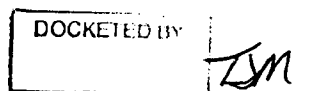
RESPECTFULLY SUBMITTED this 7th day of November 2012.

ROSHKA DEWULF & PATTEN, PLC

Arizona Corporation Commission

DOCKETED

NOV 07 2012



By

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Phoenix, Arizona 85004

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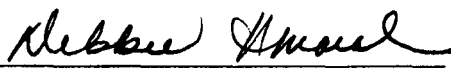
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6 Phoenix, AZ 85007

7 Copies of the foregoing hand-delivered
8 this 7th day of November 2012, to:

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24 By 
25
26
27

1 THE ARIZONA CORPORATION COMMISSION

2 COMMISSIONERS

3 GARY PIERCE, Chairman

4 BOB STUMP

5 SANDRA D. KENNEDY

6 PAUL NEWMAN

7 BRENDA BURNS

8 IN THE MATTER OF THE APPLICATION OF
9 GLOBAL WATER – PALO VERDE UTILITIES
10 COMPANY FOR THE ESTABLISHMENT OF
11 JUST AND REASONABLE RATES AND
12 CHARGES FOR UTILITY SERVICE DESIGNED
13 TO REALIZE A REASONABLE RATE OF
14 RETURN ON THE FAIR VALUE OF ITS
15 PROPERTY THROUGHOUT THE STATE OF
16 ARIZONA.

DOCKET NO. SW-03575A-12-0310

17 Direct Testimony

18 of

19 Brett Higginbotham, CPA

20 July 9, 2012

21 Updated November 7, 2012

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1 **I. Introduction.**

2 **Q. Please state your name and business address.**

3 A. My name is Brett Higginbotham. My business address is 21410 North 19th Avenue, Suite
4 201, Phoenix, Arizona 85027.

5
6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Global Water Management, Inc. as Controller. I also serve as the
8 Controller of Global Water Resources, Inc.

9
10 **Q. Briefly describe your responsibilities as Global Water's controller.**

11 A. I am responsible for managing the company's accounting and financial reporting
12 functions.

13
14 **Q. Please describe your qualifications.**

15 A. I am a Certified Public Accountant (CPA) licensed in Arizona (#13105). In 1999, I earned
16 a Bachelor of Science and a Master's Degree in Accountancy from Brigham Young
17 University.

18
19 I joined Global as Controller in 2010. Prior to joining Global, I was a senior manager with
20 PricewaterhouseCoopers (PwC), a global public accounting firm. There, I was primarily
21 responsible for managing financial statement audit engagements for clients such as Amkor
22 Technology, Inc.- one of the world's largest providers of advanced semiconductor
23 assembly and test services. Other former clients include Honeywell, Disney, Raytheon,
24 Tekelec, and Digital Theater Systems. I have nearly 10 years of experience with the "Big
25 4" accounting firm, having served a diverse set of industries. I have experience in
26 technical accounting, revenue recognition, financial statement analysis, financial reporting,
27 Sarbanes-Oxley (SOX) internal control policies and procedures, systems implementations,

1 budgeting and cross-functional team management.

2

3 **II. Rate Base Adjustments.**

4 **Q. Please describe Global's rate base adjustment #1 – Post Test Year Plant.**

5 A. Rate base adjustment # 1 represents post-test year plant. The post-test year plant is
6 described in Mr. Fleming's Direct Testimony. He also explains why the post-test year
7 plant should be included in rate base. The amount of Post-Test Year Plant of each utility is
8 as follows:

9	Santa Cruz	\$306,892
10	Palo Verde	\$818,395
11	Valencia – Town Division	\$672,571
12	Valencia – Greater Buckeye Division	\$ 0
13	Water Utility of Greater Tonopah	\$106,782
14	Willow Valley	\$ 80,436
15	Northern Scottsdale	\$ 0

16

17 **Q. Please describe Global's rate base adjustment #2 – ICFA CIAC Imputation on**
18 **Construction-Work-In-Process.**

19 A. As a result of Global's last rate case, funds received under Infrastructure Finance and
20 Coordination Agreements (ICFAs) are accounted for as Contributions in Aid of
21 Construction (CIAC). CIAC naturally has the effect of decreasing rate base, similar to
22 Advances in Aid of Construction (AIAC). In Global's last rate case, a portion of the ICFA
23 funds were attributed by the Commission toward construction work in process (CWIP).
24 The CWIP portion of ICFA funds did not get imputed as a reduction to rate base since the
25 CWIP assets were not in service and not included in rate base. Accordingly, rate base
26 adjustment #2 represents the portion of ICFA funds recorded as CIAC but attributed to
27 CWIP. This adjustment consists of removing the CWIP portion of ICFA CIAC from total

1 CIAC so that the CWIP portion of ICFA CIAC does not reduce rate base.

2
3 This adjustment also contains a corresponding decrease in the deferred tax asset that arose
4 as a result of the Company accounting for ICFA funds as CIAC. The deferred tax asset on
5 the books, as well as the rate base adjustment amounts to 38.7% (Global's effective
6 income tax rate) of the CIAC amount. Mr. Rowell explains the deferred tax asset in his
7 Direct Testimony.

8
9 **Q. Please describe Global's rate base adjustment #3 – ICFA CIAC Imputation on Plant**
10 **in Service.**

11 **A.** Similar to rate base adjustment #2 above, rate base adjustment #3 also relates to ICFA
12 funds recorded in Global's books as CIAC. Rate base adjustment #3 represents the amount
13 for ICFA CIAC attributed to plant in service pursuant to the decision of Global's last rate
14 case. As discussed Mr. Walker's Direct Testimony, Global requests that no ICFA funds be
15 imputed as a reduction to rate base. Accordingly, this adjustment effectively eliminates the
16 ICFA CIAC that would otherwise result in an imputed reduction to rate base.

17
18 This adjustment also contains a corresponding decrease in the deferred tax asset that arose
19 as a result of the Company accounting for ICFA funds as CIAC. The deferred tax asset on
20 the books, as well as the rate base adjustment amounts to 38.7% (Global's effective
21 income tax rate) of the CIAC amount. As noted above, Mr. Rowell addresses the deferred
22 tax asset in his Direct Testimony.

23
24 **III. Income Statement Adjustments.**

25 **Q. Please describe Global's income statement adjustment # 1 – 2008 Rate Case Costs**

26 **A.** In Global's last rate case, the Commission decided that Global could recover the
27 requested \$400,000 of costs which the Company incurred related to that rate case. This

1 \$400,000 is being amortized over a three year period. Accordingly, approximately
2 \$133,333 was recorded as expense during the 2011 test year on the books of the Global
3 utilities affected by the last rate case (allocated among the utilities in a systematic
4 manner). We assume that once the \$400,000 is completely amortized, the costs will not
5 be recurring on a go-forward basis.

6
7 Accordingly, income statement adjustment #1 removes these prior rate case costs from
8 operating expenses of the utilities. By the time new rates provided by this rate case are
9 effective, the \$400,000 will have been fully amortized. The amount removed from
10 operating expenses of each utility is as follows:

11	Santa Cruz	(\$53,333)
12	Palo Verde	(\$53,333)
13	Valencia – Town Division	(\$18,667)
14	Valencia – Greater Buckeye Division	(\$ 1,333)
15	Water Utility of Greater Tonopah	(\$ 1,333)
16	Willow Valley	(\$ 5,333)

17
18 **Q. Please describe Global's income statement adjustment #2 – 2011 Rate Case Costs.**

19 **A.** Similar to income statement adjustment #1, income statement adjustment #2 relates to
20 costs Global has and will incur in connection with the filing the current rate case. Such
21 costs primarily consist of legal and advisory costs incurred in preparation of this rate
22 case. Global currently estimates such costs will approximate \$787,174.

23
24 The amount added to operating expenses of each utility is as follows:

25	Santa Cruz	\$105,801
26	Palo Verde	\$104,585
27	Valencia – Town Division	\$35,298

1	Valencia – Greater Buckeye Division	\$ 4,142
2	Water Utility of Greater Tonopah	\$ 2,140
3	Willow Valley	\$ 9,923
4	Northern Scottsdale	\$ 502

5

6 Global will allocate the rate case costs to its operating utilities proportionally based on
7 the number of active service connections. The rate case costs will be amortized as an
8 operating expense over a three year period.

9

10 **Q. Please describe Global's income statement adjustment #3 – Low Income Relief Tariff.**

11 **A.** Global's last rate case provided a mechanism to provide financial support to low income
12 rate payers, the Low Income Relief Tariff (the "LIRT"). The LIRT is funded equally by
13 Global's shareholders and Global's customers through a monthly customer surcharge and
14 an equal match by Global. The LIRP is capped at \$100,000 total annual funding
15 (shareholder and customer funds). The initial monthly LIRT surcharge was calculated as
16 \$0.11 per month, per connection. Collection of the LIRT began in August 2011 in
17 accordance with Decision No. 72440 (June 27, 2011).

18

19 For accounting purposes, Global records the shareholder match as an expense on the
20 books of Global's utilities. However, since the matching funds provided by Global are
21 intended to come from shareholders rather than customers, it would not be appropriate for
22 Global to recover the match portion through rates. Accordingly, income statement
23 adjustment #3 removes the amount of Global's matching LIRT contributions from
24 operating expenses of the Global utilities. The amount removed from operating
25 expenses of each utility is as follows:

26	Santa Cruz	(\$8,295)
27	Palo Verde	(\$8,407)

1	Valencia – Town Division	(\$2,761)
2	Valencia – Greater Buckeye Division	(\$ 334)
3	Water Utility of Greater Tonopah	(\$ 172)
4	Willow Valley	(\$ 842)

5

6 **Q. Please describe Global's income statement adjustment #4 – Annualize Revenue and**
7 **Expenses for End-of Year Customer Counts.**

8 A. Income statement adjustment #4 adjusts revenues and expenses to reflect the number of
9 customers served by each utility as of December 31, 2011. The adjustment to revenue is
10 the difference between revenues generated by the Test Year bill count, and a pro forma
11 bill count that reflects the number of customers served on December 31, 2011. The
12 revenue portion of income statement adjustment #4 for each utility is as follows:

13	Santa Cruz	(\$83,647)
14	Palo Verde	\$172,993
15	Valencia – Town Division	\$ 97,384
16	Valencia – Greater Buckeye Division	(\$ 494)
17	Water Utility of Greater Tonopah	(\$1,319)
18	Willow Valley	(\$1,974)
19	Northern Scottsdale	\$2,115

20 An increase in purchased power and water treatment expense is also calculated based on
21 the estimated increase in gallons to be sold resulting from the change in year-end
22 customer counts. The expense portion of income statement adjustment #4, related to
23 purchased power and water treatment, for each utility is as follows:

24	Santa Cruz	\$ 3,553
25	Palo Verde	\$11,376
26	Valencia – Town Division	\$12,993
27	Valencia – Greater Buckeye Division	(\$ 5)

1	Water Utility of Greater Tonopah	(\$78)
2	Willow Valley	(\$67)
3	Northern Scottsdale	\$148

4

5 **Q. Please describe Global's income statement adjustment #5 – Net change in accrued**
6 **revenue accounts during the 2011 Test Year.**

7 A. As a function of the fact that customers are typically not billed on the last day of each
8 month for usage up through the last day of the month, Global is required by accounting
9 rules to make certain period-end accruals in order to record and report revenues in the
10 period that those revenues were earned. Accordingly, accruals are used to account for
11 timing differences between when revenues are billed and when revenues are recognized
12 in the financial records. Global uses two separate accrued revenue related general ledger
13 accounts: 'accrued unbilled revenue' and 'deferred revenue'. The net change in these
14 accounts between two periods reflects the activity arising from the timing difference
15 referred to above. For Global's utilities, the net change in the accrual accounts increased
16 from December 31, 2010 to December 31, 2011, reflecting the fact that more revenue
17 was earned and recognized during the Test Year than was billed during the Test Year.
18 Accordingly, income statement adjustment #5 consists of reducing 2011 revenue by the
19 amounts not reflected in the Bill Count data. The revenue removed through income
20 statement adjustment #5 for each utility is as follows:

21	Santa Cruz	(\$312,254)
22	Palo Verde	(\$562,721)
23	Valencia – Town Division	(\$113,611)
24	Valencia – Greater Buckeye Division	(\$ 16,890)
25	Water Utility of Greater Tonopah	(\$ 5,712)
26	Willow Valley	(\$16,480)
27	Northern Scottsdale	(\$ 5,798)

1 **Q. Please describe Global's income statement adjustment #6 - purchased power**
2 **adjustment.**

3 **A.** This adjustment increases purchased power costs to reflect known and measurable rate
4 increases from our power service providers.
5

6 **Q. Who are the power service providers for Valencia Water Company, Water Utility of**
7 **Greater Tonopah, and Willow Valley Water Company?**

8 **A.** Arizona Public Service (APS) is the power service provider for Valencia Water Company
9 (both divisions), as well as Water Utility of Greater Tonopah. Mohave Electrical
10 Cooperative (MEC) is the power service provider for Willow Valley.
11

12 **Q. Please discuss Global's proposal to include APS's rate increase into the rates for**
13 **each of these utilities?**

14 **A.** On May 24, 2012 the Commission issued a decision, Decision No. 73183, on APS's rate
15 application. Based on the Commission's decision, Global Water will inevitably incur
16 greater purchased power expenses starting in 2013. This known and measureable rate
17 increase could not be captured in the 2011 test year, however Global is proposing to
18 adjust the purchased power expense to account for the increased rate that will be
19 incurred.
20

21 **Q. Please discuss Global's proposal to include MEC's anticipated rate increase into the**
22 **rates for each of these utilities?**

23 **A.** In Docket No. E-01750A-11-0136, the ACC Utilities Division Staff agreed with MEC
24 that the recommended revenue increase should be \$3.1 million or a 4.02%¹. While the
25 exact rate increase for Willow Valley is not known at this time, the probability of an
26

27 ¹ DOCKET NO. E-01750A-11-0136, page 2 line 12

increase in purchased power costs appears to be high, and therefore an adjustment to the purchased power costs should be allowed.

Q. How much of an increase to purchased power costs is Global Water proposing for each utility serviced by APS?

A. Below is a summary of the anticipated increased costs on an annual basis from 2013 to 2016. The "Difference" is the anticipated increase as a result of the recently approved rate case.

	2013	2014	2015	2016
VWC	\$ 411,216	\$ 411,216	\$ 411,216	\$ 411,216
WUGB	\$ 25,206	\$ 25,206	\$ 25,206	\$ 25,206
WUGT	\$ 20,455	\$ 20,455	\$ 20,455	\$ 20,455
Total	\$ 456,877	\$ 456,877	\$ 456,877	\$ 456,877

	2013	2014	2015	2016
VWC	\$ 435,494	\$ 442,579	\$ 447,005	\$ 451,475
WUGB	\$ 26,707	\$ 27,129	\$ 27,400	\$ 27,674
WUGT	\$ 21,636	\$ 22,014	\$ 22,234	\$ 22,457
Total	\$ 483,837	\$ 491,722	\$ 496,639	\$ 501,606
Difference	\$ 26,960	\$ 34,845	\$ 39,762	\$ 44,729

Q. How did Global calculate the increased cost for the utilities served by APS?

A. The rate increases were based on the ACC's decision dated May 24, 2012, Decision No. 73183. Based on this decision, the following rates changes were factored into Global's existing power costs:

- Rates may increase by 6.4% in February of 2013 when the Power Supply Adjustor resets;

- If the Four Corners transaction closes in 2012, there would be a reduction in the PSA forward component, resulting in a negative 2.9 percent PSA impact, and the February 2013 PSA reset would be approximately 3.5 percent instead of 6.4 percent. However, since it is unknown if the Four Corners transaction will close Global used an increase of 6.4%;
- When the first LFCR adjustment is approved by the Commission, a 0.2 percent adjustment to bills would occur on March 1, 2013²;
- LFCR will have an annual 1 percent year over year adjustment cap based on total Company revenues³

Based on the adjustments identified above, a 6.4% increase was applied to the historical rates Global Water has paid effective February 2013. Additionally, a 0.02% increase to historical rates was applied effective March 2013 to account for the LFCR adjustment. Lastly, an annual increase of 1% was applied to the historical rates to account for the LFCR adjustment cap effective January 2014. The anticipated purchased power expenses without a rate increase were compared to the anticipated purchased power expenses with the anticipated rate increase. The difference between these two scenarios is the anticipated increased purchased power expense.

Q. How much of an increase to purchased power costs is Global Water proposing to add for Willow Valley as a result of MEC's rate increase application?

A. Below is the estimated annual utility costs based on historical purchased power costs. The "No Increase" estimate is based on historical costs. The "4.02% Increase" estimate accounts for an increase in purchased power rates of 4.02%. The difference between these two estimates is the proposed expense to be added.

² Decision No. 73183, Page 26 line 11-20.

³ Decision No. 73183, page 13 line 18.

	2013	2014	2015	2016
No Increase	\$ 42,933	\$ 42,933	\$ 42,933	\$ 42,933
4.02% Increase	\$ 44,659	\$ 44,659	\$ 44,659	\$ 44,659
Difference	\$ 1,726	\$ 1,726	\$ 1,726	\$ 1,726

Q. How did Global calculate the increased cost for the utility served by MEC?

A. The estimated increase in purchased power costs is based on the Staff Reply Brief in Docket No. E-01750A-11-0136, in which the ACC Staff agrees with MEC that the recommended revenue increase for MEC should be 4.02%⁴. Based on this concurrence, Global calculated a 4.02% increase into the historical purchase power cost paid by WVWC to MEC.

Q. How can Global propose an increase to purchased power costs for the WVWC utility when the proposed increase to MEC's rates has not been approved by the ACC?

A. Global Water would like to reserve the right to propose an adjustment in rebuttal testimony after the ACC issues its order in this case.

Q. Please describe Global's income statement adjustment #7 – Remove ICFA CIAC Amortization.

A. As discussed for rate base adjustment #3 above, ICFA funds are recorded in Global's books as CIAC and were imputed by the Commission in Global's last rate case as a reduction to rate base. To the extent that ICFA CIAC attributed to plant is associated with plant in service, the CIAC has been amortized as a reduction to depreciation expense. As discussed in Mr. Walker's Direct Testimony, Global is requesting that no ICFA funds be imputed as CIAC. If the Commission agrees, the CIAC imputation would be reversed, and thus there would be no ICFA related CIAC to amortize. Accordingly,

⁴ DOCKET E-01750A-11-0136, Staff Reply Brief, Page 2 line 12.

1 income statement adjustment #7 eliminates the amortization recorded during the test year
2 for ICFA CIAC. The amortization reduction for each utility is as follows:

3		
4	Santa Cruz	\$274,230
5	Palo Verde	\$366,809
6	Water Utility of Greater Tonopah	\$355,895
7		

8 **Q. Please describe Global's income statement adjustment #8 – Reclassify "unmeter"**
9 **revenue to "metered".**

10 **A.** Income statement adjustment #8 is a reclassification of revenue between accounts, with
11 no net impact on operating income.

12
13 **Q. Please describe Global's income statement adjustment #9 – Adjust for depreciation**
14 **of post-test-year plant additions.**

15 **A.** Income statement adjustment #9 represents the calculated annual depreciation expense on
16 post-test year capital expenditures discussed in rate case adjustment #1 above. As
17 previously noted, Mr. Fleming's Direct Testimony addresses the post-test year plant, and
18 explains why it should be included in rate base. If the plant is included in rate base, a
19 corresponding adjustment to depreciation expense is appropriate to reflect the additional
20 plant. Additional depreciation expense added by income statement adjustment #9 for
21 each utility is as follows:

22	Santa Cruz	\$15,345
23	Palo Verde	\$40,920
24	Valencia – Town Division	\$33,629
25	Water Utility of Greater Tonopah	\$ 5,339
26	Willow Valley	\$ 4,022
27		

1 **Q. Please describe Global's income statement adjustment #10 – Adjustment for Final**
2 **Phase of Rate Phase In.**

3 **A.** For Global's Palo Verde Utility Company, rates established by the company's last rate
4 case are phased in over a three year period, with the final rates going into effect January
5 1, 2012. Income statement adjustment #10 consists of a \$2,080,277 pro forma
6 adjustment to 2011 revenues to assume that the final phased in rates were in effect during
7 the test year.

8
9 **Q. Please describe Global's income statement adjustment #11 – Adjust Bad Debt**
10 **Expense for Pro Forma Adjustments to Test Year Revenues.**

11 **A.** Income statement adjustment #11 applies the historical bad debt rates of Global's utilities
12 and calculates bad debt expense that could reasonably be expected based on the pro forma
13 adjustments to test year revenues. The adjustment to bad debt expense for each utility is as
14 follows:

15	Santa Cruz	(\$1,249)
16	Palo Verde	\$ 10,729
17	Valencia – Town Division	(\$ 1)
18	Valencia – Greater Buckeye Division	(\$ 425)
19	Water Utility of Greater Tonopah	(\$ 161)
20	Willow Valley	(\$ 171)
21	Northern Scottsdale	\$ 0

22
23 **Q. Please describe Global's income statement adjustment #12 – Adjust Property Tax**
24 **Expense for Pro Forma Adjustments to Test Year Revenues.**

25 **A.** Because property taxes paid by Global's utilities are based on the utilities' operating
26 revenues, income statement adjustment #12 adjusts property tax expense of Global's
27 utilities that could reasonably be expected based on the pro forma adjustments to test year

1 revenues. The adjustment to property tax expense due to pro forma adjustments to test
2 year revenues for each utility is as follows:

3	Santa Cruz	\$172,531
4	Palo Verde	\$543,541
5	Valencia – Town Division	\$109,464
6	Valencia – Greater Buckeye Division	(\$7,514)
7	Water Utility of Greater Tonopah	\$3,502
8	Willow Valley	\$11,257
9	Northern Scottsdale	(\$ 590)

10
11 **Q. Please describe Global's income statement adjustment #13 – Adjust MOU License**
12 **Fee Expense for Pro Forma Adjustments to Test Year Revenues.**

13 **A.** Global's Santa Cruz and Palo Verde utilities incur license fees pursuant to a long-term
14 Memorandum of Understanding (MOU) with the City of Maricopa, payable to the City.
15 Such fees are calculated based on 2% of utility revenues plus a fee of \$50 per new
16 residential service connection. The 2% of revenues fee was accepted by the Commission
17 as recoverable test year expenses in Global's last rate case. Because the license fees are
18 derived based on the utilities' revenues, income statement adjustment #13 adjusts the
19 operating expense of the Santa Cruz and Palo Verde utilities to reflect the increased MOU
20 license fees that are be expected based on the pro forma adjustments to test year revenues.
21 The adjustment to MOU license fee expense due to pro forma adjustments to test year
22 revenues for each utility is as follows:

23	Santa Cruz	(\$4,980)
24	Palo Verde	\$34,989

1 **Q. Please describe Global's income statement adjustment #14 – Adjust Income Tax**
2 **Expense for Pro Forma Adjustments to Test Year Revenues.**

3 **A.** Because income taxes paid by Global's utilities are based on the utilities' pre-tax operating
4 income, income statement adjustment #14 adjusts income tax expense of Global's utilities
5 that could reasonably be expected based on the pro forma adjustments to test year
6 revenues. The adjustment to income tax expense due to pro forma adjustments to test year
7 revenues for each utility is as follows:

8	Santa Cruz	(\$836,406)
9	Palo Verde	(\$508,053)
10	Valencia – Town Division	(\$ 65,115)
11	Valencia – Greater Buckeye Division	(\$ 17,716)
12	Water Utility of Greater Tonopah	(\$186,461)
13	Willow Valley	(\$ 63,583)
14	Northern Scottsdale	(\$ 1,463)

15
16 **Q. Please describe Global's income statement adjustment #15 – Proposed Revenue**
17 **Increase and Adjust Bad Debt Expense for such Rate Increase.**

18 **A.** Income statement adjustment #15 adjusts proposed revenues based on the revenue
19 requirement calculated on Schedule A-1. The adjustment to proposed revenue for each
20 utility is as follows:

21	Santa Cruz	\$2,730,367
22	Palo Verde	\$3,662,560
23	Valencia – Town Division	\$ 823,424
24	Valencia – Greater Buckeye Division	\$ 36,423
25	Water Utility of Greater Tonopah	\$677,458
26	Willow Valley	\$507,537
27	Northern Scottsdale	\$ 0

1 Income statement adjustment #15 also applies the historical bad debt rates of Global's
2 utilities and calculates bad debt expense based on the proposed revenue requirement. The
3 adjustment to bad debt expense for each utility is as follows:

4	Santa Cruz	\$14,071
5	Palo Verde	\$23,174
6	Valencia – Town Division	\$ 5,150
7	Valencia – Greater Buckeye Division	\$ 890
8	Water Utility of Greater Tonopah	\$15,553
9	Willow Valley	\$5,906
10	Northern Scottsdale	\$ 0

11
12 **Q. Please describe Global's income statement adjustment #16 – Adjust MOU License**
13 **Fee Expense based on Proposed Revenue Increase.**

14 **A.** Global's Santa Cruz and Palo Verde utilities incur license fees pursuant to a long-term
15 Memorandum of Understanding (MOU) with the City of Maricopa, payable to the City.
16 Such fees are calculated based on 2% of utility revenues plus a fee of \$50 per new
17 residential service connection. As previously noted, the 2% of revenues fee was accepted
18 by the Commission as part of recoverable test year operating expenses in Global's last rate
19 case. Because the license fees are derived the utilities' revenues, income statement
20 adjustment #16 adjusts operating expense of the Santa Cruz and Palo Verde utilities to
21 reflect the increased MOU license fees that are expected as a result of the proposed
22 increase in revenues. The adjustment to MOU license fee expense for each utility is as
23 follows:

24	Santa Cruz	\$56,099
25	Palo Verde	\$75,577

1 **Q. Please describe Global's income statement adjustment #17 – Adjust Property Tax**
2 **Expense based on Proposed Revenue Increase.**

3 **A.** Because property taxes paid by Global's utilities are based on the utilities' operating
4 revenues, income statement adjustment #17 adjusts property tax expense to levels that can
5 be reasonably expected as a result of the proposed increase in revenues. The adjustment
6 to property tax expense for each utility is as follows:

7	Santa Cruz	\$69,837
8	Palo Verde	\$93,271
9	Valencia – Town Division	\$14,871
10	Valencia – Greater Buckeye Division	\$ 306
11	Water Utility of Greater Tonopah	\$11,580
12	Willow Valley	\$ 8,171
13	Northern Scottsdale	\$ 0

14
15 **Q. Please describe Global's income statement adjustment #18 – Adjust Income Tax**
16 **Expense based on Proposed Revenue Increase.**

17 **A.** Because income taxes paid by Global's utilities were based on the utilities' pre-tax
18 operating income, income statement adjustment #18 adjusts income tax expense to levels
19 that can be reasonably expected as a result of the proposed increase in revenues. The
20 adjustment to income tax expense for each utility is as follows:

21	Santa Cruz	\$1,059,113
22	Palo Verde	\$1,339,589
23	Valencia – Town Division	\$ 310,105
24	Valencia – Greater Buckeye Division	\$ 13,597
25	Water Utility of Greater Tonopah	\$251,018
26	Willow Valley	\$190,449
27	Northern Scottsdale	\$ 0

1 **Q. Please describe Global's income statement adjustment #19 – Adjustment for**
2 **Additional Treatment Costs at Willow Valley.**

3 A. This adjustment relates to additional water treatment costs to be incurred at Global's
4 Willow Valley utility after the test year. This matter is discussed in detail in Mr.
5 Fleming's Direct Testimony.
6

7 **Q. Please describe Santa Cruz's income statement adjustment #21 – Adjustments made**
8 **in 2011 Test Year for pre Test Year billing errors Costs.**

9 A. During the Test Year, through internal exception reporting and analysis Global
10 determined that prior to 2011, Santa Cruz had overbilled a small number of customers.
11 In total, the amount overcharged amounted to \$144,561. The majority of this amount is
12 attributable to two irrigation customers and resulted from applying an incorrect multiplier
13 calculation to the customers' water consumption.
14

15 Once these matters were identified, Global worked with the customers and issued credits
16 to the customers, and also recorded a reduction to revenue in the general ledger. These
17 credits have been purposely excluded from the Bill Count data in the H schedules of the
18 rate application. Accordingly, the amount of the credits has been added back on
19 Schedule C-2 through adjustment # 21 in order to reconcile general ledger revenue to
20 Schedule H-1.
21

22 **Q. Please describe Palo Verde's and Santa Cruz's income statement adjustment #20 –**
23 **Adjustment to eliminate self billing included in Bill Count.**

24 A. Global's Palo Verde and Santa Cruz utilities sell a relatively small amount of water to
25 themselves. Within their billing systems, Palo Verde and Santa Cruz are set up and billed
26 as any other third party customer. For financial reporting purposes, Palo Verde and Santa
27 Cruz reverse ("eliminates") the revenue that it charges itself. The reversal of the self

1 billed revenue is recorded outside of the billing system. In total, Palo Verde billed itself
2 \$5,047 during the Test Year, and the same amount was reversed in the general ledger.
3 The amount for Santa Cruz is \$8,974. Accordingly, the amount of self billed revenue that
4 was reversed in the general ledger is added back on Schedule C-2 through adjustment #
5 20 in order to reconcile to Schedule H-1.
6

7 **IV. Schedules.**

8 **Q. Please describe the schedules you are sponsoring.**

9 A. I am sponsoring all of the Company's schedules, with the exception of the Cost of Capital
10 Schedules (A-3, D-1 to D-4, and H1 to H5), which are sponsored by Mr. Rowell.
11

12 **Q. Please describe the "A" schedules (A-1 to A-5).**

13 A. Schedule A-1 provides an overview of the rate increase. Schedule A-2 provides a
14 Summary of Results of Operations. Schedule A-4 provides Construction Expenditures and
15 Gross Utility Plant in Service. Schedule A-5 provides a summary of changes in financial
16 position.
17

18 **Q. Please describe the rate base schedules (B-1 to B-5).**

19 A. Schedule B-1 provides an overview of the original cost rate base. Schedule B-2 provides
20 details of the pro-forma adjustments to the original cost rate base. Global did not prepare a
21 Reconstruction Cost New (RCN), and accordingly adopts its original cost rate base as its
22 fair value rate base for the purposes of this case. Accordingly, there are no RCN schedules
23 (B-3 and B-4). Schedule B-5 provides the computation of working capital. In this case,
24 Global is not requesting an allowance for working capital.
25
26
27

1 **Q. Please describe the income statement schedules (C-1 to C-3).**

2 A. Schedule C-1 is the adjusted test year income statement. Schedule C-2 shows each pro-
3 forma adjustment to the test year income statement. Schedule C-3 provides the
4 computation of the gross revenue conversion factor.
5

6 **Q. Please describe the Financial and Statistical Schedules (E-1 to E-9).**

7 A. Schedule E-1 provides comparative balance sheets for the test year and the two previous
8 fiscal years. Schedule E-2 provides comparative income statements for the test year and
9 the two previous fiscal years. Schedule E-3 provides the comparative statement of changes
10 in financial position for the test year and the two previous fiscal years. Schedule E-4
11 provides a statement of changes in stockholder's equity for the test year and the two
12 previous fiscal years. Schedule E-5 provides the detail of utility plant for the test year and
13 the two previous fiscal years. Schedule E-6 is not relevant. Schedule E-7 provides certain
14 key operating statistics for the test year and the two previous fiscal years. Schedule E-8
15 provides a schedule showing all significant taxes charged to operations for the test year and
16 the two previous fiscal years. Schedule E-9 provides notes to financial statements.
17

18 **Q. Please describe Projections and Forecasts Schedules (F-1 to F-4).**

19 A. Schedule F-1 provides a schedule showing the income statement for the projected year,
20 compared with actual test year results, at present rates and proposed rates. Schedule F-2
21 provides a schedule showing projected changes in financial position for the projected year
22 as compared with the test year, at present and proposed rates. Schedule F-3 provides a
23 schedule showing the projected annual construction requirements, by property
24 classification, for 1 to 3 years subsequent to the test year compared with the test year.
25 Schedule F-4 provides documentation of the key assumptions used in preparing the
26 forecasts and projections.
27

1 **Q. Please describe the "H" schedules (H-1 to H-5).**
2 A. Schedule H-1 provides a summary of revenues at present and proposed rates. Schedule H-
3 2 provides the Analysis of Revenues by Detailed Class of Service. Schedule H-3 provides
4 the changes in rate schedules. Schedule H-4 provides the typical bill analysis, while
5 Schedule H-5 is the bill count.
6

7 **Q. Does this conclude your direct testimony?**
8 A. Yes.
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